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PRÆSAGIUM MEDICUM,

OR, THE

Prognostick Signs

OF

Acute Diseases;

Established by

ANTIENIENT OBSERVATION,

AND

Explain'd by the

*Best Modern Discoveries.*

---

By JAMES HARVEY, M. D.

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Τὴν ὃ διεγερτικὴν αἰσθάνειαν ποιεῖτο προσδῶς τὰ εἴδη  
τῶν παθημάτων. Hipp. 1. Progn.

---

L O N D O N :

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TO  
THOMAS CHAPMAN  
OF  
*Caldecott in the County  
of Bucks, Esq;*

S I R,

**I** Purposely avoid the usual  
Strain of Dedications,  
that I may not trouble You  
with reading the Character  
Your Merit has so justly ob-  
tain'd



tain'd among those who are happy in your Acquaintance; because your Modesty does not allow it in your most intimate Friends. But, thus I must cross my Inclinations in the most inviting Subject, whilst I have the fairest Occasion of paying that which is due to your Merit, as well as of satisfying in some measure the extream Desire I had to express the Sense I have of your Friendship and Civilities.

The Present I now make You is too mean, and the easiest Return that can be made: But permit me, Sir, to entreat your Acceptance of it, as  
an

# The Dedication.

v

an entire Testimony of my true Esteem for You, tho' it derives its Merit only from the Sincerity of the Offerer, who cannot ask your Approbation without discovering his own Ambition. For, as You possess a great share of the most Useful and Polite Parts of Learning, so you have so nice a Taste and bright a Judgment in the Physical Art, that You never bestow that Favour but on such as deserve it.

But, as this small Treatise comes to own your Friendship and Civilities, so I presume to hope, that your engaging Tem-

A 4

per,

# The Dedication.

per, and that Goodness and Candor that's so peculiar and natural to you, will incline you favourably to receive it as it is, being offered with great Respect, and to believe that I am sincerely

S I R,

*Your most Obliged*

*Humble Servant,*

Ja. Harvey.

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T H E

P R E F A C E.

**T**H O' it be certain, that the Recovery of the Sick is the great Design of the *Medical Art*, and undoubtedly more necessary than to *pre-sage* the *Event* of their Distempers ; yet 'tis no less certain, that when the *Prognostick* Part of Medicine is managed with due Circumspection, Caution and Prudence, besides, that it acquires no small Esteem and Authority to the *Physician*, and vindicates the Profession from the Reproaches and Contempt that's thrown upon it ; nothing is more conducive to incline and dispose the *Patient*, with some Confidence and Assurance, to observe the Advices of such, who not only can reason upon the Nature of his Distemper, account for its Causes, and tell him what happen'd before the Invasion of his Illness, but likewise what may be the *Issue* and *Event* of it. Whereas  
the

the *Predictions* that are doubtful, wavering and uncertain, not only render the Patient hopeless, but the Physician also suspected of Ignorance, especially, when nothing is more reasonably expected, than that he should prevent a dangerous imminent Symptom discover'd afar off, and by his Art hasten a good one long'd for.

Thus it was, that the Great *Hippocrates* acquir'd that just Esteem, which always will be due to his Merit. For, having with the greatest Diligence and Industry observ'd the most minute Circumstances of Diseases, he could not only distinguish the one from t'other by the Signs that properly belong'd to each ; but by comparing the same sort of Distemper which happen'd to several Persons, and the Accidents which usually appeared before and after, he could foretel a Disease before it came, and give a right Judgment concerning the *Issue* and *Event* of it.

Now, the Nature of most Diseases being the same as in former Ages, and their Periods observing the same Order as formerly, the Observations made concerning them, as they are perpetual, so likewise the more certain. And forasmuch



as the Concern we have for our Bodies in the Disorders of Sicknefs, makes us solicitous to know what will become of them, and no lefs careful to apply to those who make it their Profession to know the Fabrick and Constitution of a Human Body, and the Changes and Alterations that happen to it, for their Advice and Sentiments concerning *Ours*.

I purposed therefore, at first indeed, for private Use and Satisfaction, to inquire into the Advances that have been made in the *Prognostick* part of *Medicine*, not only from the excellent Observations of the Divine *Hippocrates*, every where to be found in his Writings, but more particularly collected in his Book of *Aphorisms*, *Predictions*, and *Observations*, which were kept in the School of *Coos*, but also from those latter ones of more modern Authors, which indeed are described with all imaginable accurateness; every one having trod the old Path, and probably upon the Authority of that Great Man; but (as if *Empyricism* should always prevail) without any further Inquiry, or giving us the true *Reasons* of those remarkable *Phænomena* upon which the *Prognostick* part of *Medicine* ought to be founded.

The

## The Preface.

The Respect that's due to the Memory of the Antients, will not permit us to imagine, that this unaccountable Laziness could proceed from a Belief, that Medicine was a consummated Art, and brought to due Perfection, and that they were only to enjoy the advantages of that Light which they had from those that went before them. But, they may be more justly charged with neglecting to inquire into the *Reasons* of that vast number of Observations, which seem to have been taken upon meer Authority, tho' many of them be founded only upon particular Cases, and set off with amusing and unintelligible Terms, without any regard to the unalterable Laws of *Motion* and *Mechanism*. And tho' it be true, that 'tis peculiar to *Medicine* to be vastly extensive, and that one Man's Life seems to be too short to arrive to any tolerable Perfection in it; yet much of this may be justly ascribed to an undue treatment of it, or sitting down upon those bare Observations, which others have made, without ever satisfying our *Reason* concerning them. For,

How conducive soever towards the improvement of Medicine, Observations may be, yet they must be much more so, when



when founded upon *solid Reasoning*, which, tho' it be the Measure and Standard of all our Actions, and the *Basis* of Arts and Sciences, has nevertheless been least of all regarded in this. Hence are the small Advances that formerly have been made in *Physick*, which, probably, had been brought to greater Perfection than now it is, had it been treated as it ought to have been, and considered in its own Essence, and rather as a Science than an Art; seeing its *Object*, namely, *Human Body*, as 'tis one of the most surprising Pieces of *Mechanism*, so are its Distempers owing to a Vitiating of the Quantity, Quality, and irregular Motion of its Fluids, to a bad Disposition and Texture of their Channels, and of the other solid Parts. Now, all these being only Modifications of material Beings, and having the Dimensions of Bodies, must undoubtedly be examined by the Effects and Causes of those Qualities, and as far as they are accountable by the known *Laws* of *Mechanism*.

But, as if this last had been reserv'd to atone for the Laziness and Ignorance of former Ages, more Discoveries have been made, and greater Light of late has been brought into the dark Regions of *Physick*, than for some thousands of Years past.

past, which is justly owing to the Industry of those brighter Minds, who to make the greatest Removes from *Empyricism* that could be, have taught us to *reason* clearly and intelligibly upon natural *Appearances*, instead of amusing ourselves with precarious Hypotheses and Conjectures.

But, this matter being already discours'd on by the Learned Author \* of the *New Theory of Fevers*, I shall only add, that in reflecting upon the present State of the *Medical Art*, as I'm convinc'd, the most Ingenious of the Age, who are engag'd in the Profession, will acknowledge the great Improvements the Great *Borelli*, *Bellini*, *Pitcairne*, and some others have made in it, so neither can I, in the treatment of this Subject, wherever occasion has offered, forbear to discover my Ambition in following after that *Light* which those Great Men have enriched the Art with. And as to the Reader's Censure, to abate it in some measure, I think it not improper to acquaint him, that I had rather own all I may be charg'd with in the management of the following Discourse, than trouble my self more about it; and therefore shall neither bespeak his Indulgence nor favourable Construction.



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# PRÆSAGIUM MEDICUM.

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## Introduction.

**C**ould our Bodies always persist in their Natural State without any Alteration, and every part whereof they are compos'd, exert its Office; we should enjoy a perpetual course of *Health*, a State and Condition always desirable. For every one that values Health, and knows how nice and brittle the *Make* and Fabrick of his Body is, and how soon disordered, Wards off, as long as he can, the Diseases that assail him; because, every Indisposition and Disorder, threatens Dissolution and *Death*, which is the greatest Disease.

But no body enjoys *perfect Health*, and they only are said to be soundest, who are less pained than others or themselves use to be; For besides, that, every part of Humane Body consists of Principles which naturally tend to dissolution, the Impressions that are continually made upon it from  
B without

without and within, must more or less interrupt the Course of that we call *Health*; not to mention, that, some even in a *Physical* Sense, are in a dying State, as soon or before they come from the Womb; their indisposition being owing to their Primary Conformation, which can never be repaired.

But, tho we should enjoy a tolerable State of *Health*, for some time, yet, by the repeated Functions of Life, the Springs that move our Bodies, at last come to be weakened and unbended; and the Distempers that follow thereupon continue while we Live. Again, some die before they are Sick, that is, affected with any apparent Distemper or Sense of Pain. Thus we fall a Victim to *Suffocations*, *Appoplexies*, *Polypus's*, *Drop-sies*, Ruptures of Latent *Apostems*, and such like Distempers. A sudden Perturbation, Obstruction and Confusion of Spirits in an Instant extinguisheth the vital Flame. And when the great Spring, the *Circulating Blood* and vital Stream, for which so exquisite Pipes are made to distribute it to all the Parts, and return it back again to its first Source, for reiterated Motions and Functions ceases to move, (which upon many Occasions, and seemingly slight Disorders it frequently doth) Life ends.

But such Diseases as are owing to an Impotency of Nature, a Defect in the Instruments of Concoction and Organs of Secretion, Indigestion, Congestion or disturb'd Motion of Humours, come not to their Period  
so



so soon; And tho at Last they come to be fatal, yet, their Symptoms are so obvious, and they give such Evidences of their Nature, that, 'tis almost Impossible to mistake them, or not know what they portend. Whereas, those Distempers which are chiefly seated in the Fluids, and therefore *acute* and short, by reason of their quick and violent motion, occasioned sometimes by external Causes, and sometimes proceeding from this or that peculiar Inflammation of the Blood; irregularity and *Intemperies* of particular Bodies, run speedily through their Period; and are so nice and unmanagable, that, sometimes they seem to baffle *Experience* it self, and the very Principles of the *Prognostick Art*. Having therefore propos'd to my self an enquiry into the State of our Bodies in the last mention'd Distempers, what's portended by their *Symptoms*, and if the Machine can be repaired and put in order for some time ( for it cannot last long in Comparison with more solid Bodies) or, if the disorder rises so high, that it cannot be surmounted but must needs come to a dissolution; It may not be unfit in the first place, to enquire what's portended and presag'd by the frightful Symptom and Appearance of a *Delirium* or *Raving*.

## C H A P. I.

*Of a Delirium and Frenzie.*

**I**F we can't account for the Union of the Mind and Body, nor reach it with the Eye of our Reason; yet, the mutual *Sympathy* that's between them, is very obvious: For, while the Blood and Spirits run briskly in their Channels, the Mind is pleas'd and joyful; But when they are slow and dull or obstructed in their Motions, we are sad and pensive; and upon the least indisposition of the Body, our Mind is put into Disorder and Perturbation: And when the indisposition is great, and the *Craſis* of the Blood considerably altered, the Texture and Cohesion of its parts dissolv'd, when the Globules of it are broken, and the Nervous Liquor runs confus'dly and at random into the *common Sensory*: a Thousand different *Species* must be represented to the Mind, without order and Coherence, exciting it to all those appearances and irregularities, which we see in those that are *Delirious*.

The ways by which the Mind may be brought into this perturbation, are as many and various as those by which an Indisposition may be induc'd upon the Blood; and their Effects are more or less dangerous, and of longer and shorter Continuance according to  
their



their productive Cauſes. Thus, the *Delirious* Motions of the Mind, that are owing to immoderate Drinking, Anger, want of Sleep, and the like, are taken off, and become more regular, when the Blood hath thrown out the Heterogeneous Particles of the hot Liquors, and recovered its wonted Circulation. Thoſe that are cauſed by Stroaks, Wounds and Contuſions of the Head, continue longer and are more dangerous; chiefly, becauſe the Veſſels of the Brain are cut and Diſordered, or a Fermentation raiſed in the Blood. Again the *Delirium* or Frenzy of Lunaticks, tho it laſt ſome Months or Years, and ſometimes all their Life, is yet leſs dangerous; either becauſe their Blood is ſo much fixt, that it cannot riſe to a Fermentation, or ſo fluid, that it cannot be obſtructed in the ſmaller Veſſels. But the *Delirium* and *Frenzie* that's here conſider'd, as one of the Symptoms of continual Fevers, is different from all thoſe, not only with reſpect to its Productive Cauſe, but alſo to its dangerous Effects.

Whatever be the primary or productive Cauſe of Feveriſh Diſtempers, 'tis plain that at the firſt Invaſion of thoſe that are acute and continued, the active Liquor of the Nerves ſeems to be fix'd, ſhut up, and hudled together, and the Blood in the Veins to be depriv'd of its circulating Motion: For, the extreme parts are cold, the Pulse weak, and the Reſpiration quick, the Patient is in a languiſhing and fainting State; and as ſome have obſerv'd, there is a coldneſs in the Blood taken from his Veins. But this Scene ends

in a little time when the Blood and Spirits recover their force and Motion, and come to be more univerſally diffus'd : The Cold and ſhivering is chang'd into Heat, the Pulse is ſtrong, brandiſhing and quick, the Arteries and Veins are ſwelled and embouldned, and the Quantity of the Blood augmented, that is, its parts are rarified, according to the Degrees of its Velocity.

The Blood being thus augmented, muſt diſtend its Channels and preſs upon their Membranes, and the Veſſels that are adjacent to them, eſpecially thoſe of the Head, where they are moſt implicated and twiſted. Hence are the exquisite Pains, Stagnation of the Liquids, and other Diſorders of the Brain. And when the unuſual velocity and heat of the Blood hath continued a conſiderable time, its *Serum* muſt be exhausted, and its parts rendred more Viſcous and fix'd, becauſe a preſſion upon the ſmaller Arteries and adjacent Veſſels, muſt ſtrain out the more Liquid and *Serous* part, or whatever is moſt fluxible, and thereupon that which remains, muſt be the leſs diſpos'd for Motion. So that whether we conſider the Blood as augmented in the Arteries, (as it muſt be when it is not emptied into the Veins, ) or otherways vitiated by a long continued Heat, its Channels muſt be diſtended, and the Nerves and Fibres, eſpecially thoſe of the Brain contracted, and thereupon an irregular Motion produced in the Animal Spirits, which, not obſerving any certain and determin'd Order and Coherence, muſt represent thoſe various



ious *Species* to the Brain, by which the Mind is excited to a *Delirium*, or *Raving*, and at laſt to that of a *Frenzy*; if it be not taken off by Nature or the interpoſition of Art.

To ſee the diſorder of the Mind in this State, will readily convince us, that it muſt be the Product of that of the Body, an Alteration of the whole Frame and Conſtitution, an intense heat, augmentation or obſtruction of the Blood in its Circuit, a Medley of the Liquids and Confuſion of the Spirits, a Stagnation of the Blood and Humours in ſome parts, and a diſſolution of it in others, ſome parts cold and benum'd, and others hot and inflam'd, in ſome parts a relaxation and ſlaggiſſeſs, and in others a *Tenſion* of the Nerves. In one Word, every thing that tends to the diſjoynting of the Machine, and putting an end to its Fabrick and Motion.

Now, it comes to be conſidered, what may be the Event and Reſult of this frightful Symptom; and what are the juſteſt *Prognosticks* that can be made, with reſpect to the Death or Recovery of one in this State.

That the irregular Motions of the Nervous Liquid, immoderate watching or waking, the exquisite Pains of the Head, *Delirium* and *Frenzy*, muſt continue, till the heat and quantity of the Blood, ſtagnated and collected in the Capillary Arteries of the Brain, be taken off and diminished, is very plain; and it is likewise certain, that nothing is more conducive to this purpoſe,



than *Spontaneous Sleep*, and all ſorts of *Evacuations*.

As to the firſt of theſe, 'tis commonly thought to be a good Sign, and gives fair Promiſes of Recovery, when a *Delirious Perſon* after long *watching* falls into a *Spontaneous Sleep*; But how uncertain the Reſult of it may be, is gathered from *Hippocrates* (a) and for the better underſtanding of this *Aph.* and the *Sleep* of thoſe that are *Delirious*, we are to obſerve, that there are always ſome Intermiſſions and Exaſperations, in this as well as other feveriſh Diſtempers, chiefly, becauſe the heat and fervency of the Blood, is not always the ſame, or equal to it ſelf; being ſometimes greater and ſometimes leſſer, according to the fluidity and viſciduity of its parts, and velocity of its Motion. Now, 'tis plain, that when the heat of the Blood is greateſt, and its parts rarified or ſtagnated in the Arteries of the Brain; there muſt be likewiſe a Diſtention or Contraction of the Nerves and Fibres of thoſe parts; and as was obſerved, an irregular Motion induc'd upon the animal Spirits, and conſequently a continual *watching* and *raving*, and at laſt a *Frenzie*. But when there is any remiſſion of this intenſive Heat; that is, a leſs velocity in the Blood, the diſtended Fibres are thereupon relax'd, and the Nervous Liquid more equally diſtributed, and the *watching* changed into *Sleep*, which is longer or ſhorter interrupted or diſturbed, according to the greater or leſſer heat and fervency in the Blood; and *Tenſion* of the ſmaller Veſſels.

Hence

(a) Aph.  
50. § 4.

Hence 'tis likewise plain, that the shorter and more disturbed the *Sleep* of *Delirious* People is, so much the greater is the Velocity and Heat of their Blood ; and when the Sleep is moderate, that is, is neither too long, nor too short, disturb'd and interrupted with Starting, Dreams and Frights ; it argues a temperate Motion of the Blood, and fairly promiseth a Recovery. But, when the fervency and heat of the Blood, and distension of the Arteries, Nerves and Fibres of the Brain hath continued a long time, they come to be so much weakned, relax'd, and unbended, that their Tone and Elasticity can never be recovered, and therefore the *Delirious* Person, after long watching, raving and Frenzie, falls asleep, or seems to be so, being depriv'd of all his Senses external and internal, so that he is no more *Delirious* nor sensible of Pain ; there is yet some Motion in his Tongue, but he can't speak, because the Animal Spirits and Circulating Blood, are totally obstructed without any hope of Recovery.

Thus, in *Delirious* Distempers, which are caused by the acuteness of continued and hot Fevers, it is easy to distinguish ; the Sleep that's Salutary and tends to recovery, from that which is Mortal, respect being always had to the Degrees of the velocity, Heat and Inflammation of the Blood, Distention or Pressure of the Nerves, Obstruction of their Liquid, and continuance of the Watchings.

Again,



Again, great hopes of Recovery in this Distemper, are had from all sorts of *Evacuations*, chiefly, because they check the velocity of the Blood, diminish its quantity, take off its obstruction and relaxeth the Nerves. This is remarkably certain in the *Delirium of Lunatics*, there being nothing more conducive to take off that Distemper than Evacuations by Sweat, Urine, Excretions by Stool, the Hemorrhoids and Hemorrhages. *Aph. 21. § 6. Aph. 5. § 7.* But, no just *Prognosticks* can be form'd concerning *Evacuations*, without a due regard had to their Quantity and Quality, and the time and place in which they happen. Thus, a copious bleeding at Nose, in the beginning and height of this Fever, is a good Sign, not only as it takes off the heat and fervency of the remaining Blood, but also, as it brings with it some part of the febrile Matter, which either mitigates the Distemper, or takes it quite off. But, on the other hand, no Sign is more dangerous and mortal, than when the Hemorrhage amounts only to a few drops; and of a blackish Colour. For, it signifies not only an extream weakness in the lesser Vessels, and acidity in the Blood, but also, an obstinate obstruction in its circulation through the Capillary Arteries, whose sides being pressed and embouldned by the rarified or stagnated Blood, and, finding no passage into the Veins, must recoil upon, or break those finer Membranes and Vessels. And,



The LAUGHTER of thoſe in a *Delirium*, hath been accounted a Sign leſs dangerous, than that of ſhedding involuntary Tears. But, 'tis no hard matter to know what's portended by both, if we advert to the great preſſure that's made upon the Capillary Arteries and other Veſſels of the Brain, when they are embouldned with a greater quantity of rarified or ſtagnated Blood than is uſual: For, thus the *Lymph* and Serous part of the Blood muſt be ſtrained into the *Glandula Lacrymalis*, and thence into the Angle of the Eye in watry Globules or Tears; but, this Moisture is inſenſibly dried up and exhausted by a long continued heat and inflammation of thoſe parts, and the little of it that's yet remaining, is thin and acid, appearing ſometimes in this, and ſometimes in the other Eye; than which, there is no Sign more pernicious and mortal, not only becauſe it ſignifies an extream dryneſs and want of *Lymph* and *Serum*, and a preternatural Secretion of it, but alſo, an irrecoverable flaggineſs and relaxation of the finer Membranes and Veſſels of the Brain.

Neither can a *Delirious Laughter* be leſs dangerous, unleſs it proceed from the Representation of ſome *Species* to the Mind and Reflection upon it: For, in this Caſe, this *Delirious Motion*, not only tells us the ſtate of the Brain, but likewise, that there is yet ſome motion and fluidity in the Animal Spirits, and vigour in the *Viſcera* and Muſcles of the Cheeks and Mouth. But, all the Motions of *Delirious Diſtempers* being (for  
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the reasons above mentioned) irregular and undetermin'd, we are not to think that this of *Laughter*, can be any thing else than a Distension or Convulsion of those Parts, caus'd by a continued Heat, Dryness, and want of Moisture. For, in whatever part this is wanting, there must needs be a Contraction or *Tension*, that is, the part becomes inflexible or Convulsive. Hence it is, that Convulsive Motions usually accompany or follow upon a *Delirium* or *Frenzie*.

*Hippocrates* has considered this fatal Symptom of Fevers, as accompanied with a *difficulty* of *BREATHING*, and thus condemn'd it as a mortal Sign. (a) Neither had he a good Opinion of it, when it followed upon immoderate bleeding, (b) the Iliack Passion, (c) and Pulmonary Distempers, (d) The Truth of this first *Aph.* not to mention that of the rest, will appear to be very plain, if we observe, that the manner of *breathing* in those that are *Delirious*, is not always the same, but different according to the Degrees and Continuance of the Heat of the Blood, increase of the Fever, Generation and Velocity of the Animal Spirits. For,

As the first of these, namely, the Heat and Inflammation is augmented, the *Respiration* likewise, becomes more *lowd* and *slow*; but, in a little time it is quite otherwise, by reason of the alter'd state of the Nervous Liquid, of which a more than usual quantity, as well as too volatile and irregular in its Motion, may be generated or separated from the Blood in the beginning of the Fever. Now

(a) Aph.

50. § 4.

(b) Aph.

9. § 7.

(c) Aph.

10. *ibid.*

(d) Aph.

12. *ibid.*



Now, 'tis no ſmall Portion of the Animal Spirits, that is requiſite and neceſſary to move the Muſcles of the Breſt, even in a State of Health: But, when the Fever is augmented, and the Patient is become *Delirious*, the quantity of this Nervous Liquid, is very inconfiderable, not only becauſe it is not ſupplied and generated by the Blood, (which after a long Heat and Inflammation is diminifhed vapid and impoveriſhed) but alſo becauſe it is obſtructed in its motion, and therefore the *Reſpiration* muſt be *ſlow* and *lowd*; but, in a little time, it comes (for the ſame reaſon) to be ſo *low* and *ſlow* that the ſick Perſon breaths no more.

It ſeems to be a happier *Omen*, when, a *Delirium* comes upon thoſe in a *Lethargy*, *Coma Vigil* and the like Diſtempers; becauſe it Indicates a Heat or Velocity in their Blood, and that the Viſcous and crude matter of the Lethargick Diſtemper, is rendred more fluid, and diſpos'd to be thrown out by the ordinary ways of Excretion, or that 'tis collected into ſome Tumor or Abſceſs. But whatever be the Advantage that's to be had from the Converſion or Tranſmutation of one Diſeaſe into another, (and this happens very often) yet, this of a *Delirium* or *Frenzie* is always to be ſuſpected as one of the moſt dangerous, in whatever caſe it Happens. Only, that which ſometimes intermits may be leſs dangerous, and go off at laſt upon a freer Circulation, and more equal Diſtribution of the Blood: But, when the Inflammation is great and of a long continuance, the



the *Delirium* muſt end in a *Frenzie*, gnawing of the Teeth, fix'd and unmoveable Eyes, inſenſible voiding of Urin and Excrements, a dry and black Tongue without Thirſt and Pain, a Gangrene of the Brain, or a Mortification and Corruption of its Parts, and a Diſſolution of the Animal Machine.

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C H A P.

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## C H A P. II.

*Of Prognosticks taken from the Senses.*

**T**Hat all the Parts of Human Body owe their Origin to the Brain and its *Meninges*, as some will have it, is a Doctrine not yet commonly approved of; or confirmed by repeated Observations. But that there are in the Brain a stupendous and infinite number (besides those which are more visible and remarkable) of twisted Strings, Cords, or (as we may at least suppose them to be) hollow *Tubuli*, containing an active, spirituous and thin Liquor, of a greater or lesser Motion and *Impetus*, according to its *Flux* and *Reflux*, sometimes relaxing, and sometimes distending its Vessels, and receiving the Impressions of the Senses and Mind, is more certain. As also that they are either vibrated in their Extremities without the Brain, as in the Senses by external Objects, and the Pulsation is propagated to the Brain, representing to the Mind those *Species* that are proper to the Object; or, they are moved in their other Extremity within the Brain, and the Impression receiv'd from the Mind, is propagated in an instant to the external Parts; so that whatever be the Impression that's made upon those Vessels in either of their Extremities, the same must be propagated to the other. There

There is no one but knoweth that this nice Fabrick of the twisted Fibres or Nerves, and the Spiritous Liquor contained in them, may be a thousand ways disorder'd; and there-upon as many Diseases and Distempers brought upon the Body: For, when they are too flabby and flexible, their Elasticity is so weak and inconsiderable, that they cannot propagate the Impression that's made upon them by the Mind or external Objects, and when they are too dry and hard, they must be necessarily contracted, and their Liquor obstructed in its Motion. Hence are all the Disorders of the Senses, the State of which plainly indicates that of the Sick, the Nature of the Disease, and the result of it.

In all acute Distempers a particular regard is always had to the *Head*; chiefly because its parts being subtil and fine, and of a curious Structure and Mechanism, are soonest brought into disorder: And altho we cannot see what's transacted within the Brain, yet, its State and Condition is more than guess'd at, by its Effects upon the Adjacent Parts; Especially those of the *EYES*, which are variously affected, according to the disorders of the Brain, which are chiefly, if not altogether owing either to a *Plethora* of Serous and Viscous Humors, and that of the Blood, or to a wasting and decay of its Parts.

Under the first sort are comprehended, all Sleepy and Lethargick Distempers, in which, there is more or less Privation of all  
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the Senſes, according to the Degrees of Cold and quantity of groſs Humours amaſſed in the Glandules of the Brain. Hence is the preternatural Sleep, ſwelling of the *Eyes*, and ſhutting of the Eye-Lids. For, when the Brain is ſtuffed and fill'd with cold and viſcous Humors, the Blood is ſo much altered in its quality, that it cannot circulate in a due quantity, neither can it Generate, or Separate any animal Spirits, but ſuch as are groſs, unactive and unfit for Muſcular Motions. The Muſcles upon this account become flabby and ſoft, and cannot be contracted : And if there be a greater *Flux* of the Animal Spirits, ( whoſe Motion now is irregular ) into the *Muſculus Conſtrictor*, than into the *Levator* ; the *Eye* muſt be ſhut, and likewise ſwelled and enlarged, upon the addition of new Blood to that which was already too viſcous and clogged with groſs Humors in the Brain, the Colour of the *Eyes* ; nevertheless, being rather pale than red and Sanguin, by reaſon of the whitish Humors mixed with the Blood.

From this and the like Appearances of the *Eyes*, the Event of all the Diſtempers, of which it is a Symptom, may be præſag'd ; reſpect being always had to the manner of Sleeping and Continuance of it : For, as the *Eyes* are partly or entirely ſhut and cloſed, and the Sleep ſhort or profound ; ſo is the Danger. Upon this account, a *Carus* is thought more pernicious than a *Coma* or *Lethargy*, and an Apoplexy as every one knoweth yet worſe ( *a* ). And, when either

( *a* ) Hipp.  
Aph. 42.  
§ 2.

of theſe come upon an acute Diſtemper, the Caſe is deſperate and without Hope. For, it ſignifies, as was obſerved, a diſſolution of the Parts, a total obſtruction of the Animal Spirits, and a Relaxation of the Nerves and Fibres that can never be recovered; eſpecially in Old People whoſe Veſſels and Canals are naturally render'd flaccid; and their Liquors exhausted, vapid, and impoveriſh'd.

The other mentioned diſorder of the *Eyes*; namely, that which is cauſed by a *Plethora* of Blood, obſtructed in the Capillary Arteries of the Brain, is their *Splendour* and *Sanguin Colour*: As this Appearance of the *Eyes* is always a Symptom of feveriſh Diſtempers, ſo likewiſe of amaſſed and ſtagnated Blood, and therefore was obſerved by *Hippocrates* (a) when it was accompanied with Deafneſs, Heavineſs of the Head, and Diſtention of the *Hypocondria*, to prognosticate an Hemorrhage at Noſe. Of this Opinion likewiſe was *Galen*; having as he tells us, upon the certainty of this Obſervation, foretold an Hemorrhage at Noſe, to one of his Patients, in the preſence of many Roman Phyſicians. 'Tis plain indeed, that this Prediction may oftner hold in thoſe that are Young, whoſe Blood is brisk and Spiritous, than in thoſe of a more advanc'd Age. But high coloured and *Blood-shot Eyes* in all acute Diſeaſes, is dangerous in both. For, as it ſignifies a greater than uſual quantity of obſtructed Blood, in thoſe finer Veſſels that are eaſily corroded, broken, and  
cut,

(a) Coac.  
Præ'ag.  
§ 2.



cut, ſo is it ſtill uncertain, whether, the Blood iſſuing at the Noſe ( if it happen at all ) ſhall be of that quantity that's requiſite, effectually to mitigate the Symptoms of the Diſeaſe, or prevent its further Progreſs. But, if after this eruption of Blood, a Darkneſs or *Splendour* of the *Eyes* continue, accompanied with a cold Sweat upon the Forehead, Temples and Neck ; and the *Lips* and *Eyes* come to be Diſtorted, Death is at hand.

This bright and *Flame-Colour* is likewise obſerved in the *Eyes* and *Faces* of thoſe that are affected with Pulmonary Diſtempers : For, in ſuch, the Blood being obſtructed in the Lungs, muſt ſtagnate in the Branches of the *Vena Cava* that are diſtributed to the *Eyes* and *Face*, while ſome part of it is ſtill flowing into the Arteries. Hence, is the Swelling of thoſe Parts, and the brightneſs of their *Colour* : For, the Blood of thoſe in this Diſtemper is very thin, and purified from its groſſer Parts, which are intercepted and congeſted in the Lungs, where the Inflammation is greateſt. But more of this hereafter.

The *DEAFNESS* that comes upon *Fevers*, is commonly obſerved by Nurſes and By-ſtanders to be a Sign of Recovery ; tho', in ſome Caſes hereafter mentioned, it is nothing leſs. For, all the Diſorders of the Brain, ( of which this is a Symptom ) whether cauſed by a *Plethora* of Humours, or interception of the Blood in its capillary Arteries, are always dangerous and ſuſpected ;



(a) Aph.  
28, & 60.  
§ 4.

For this reason, *Deafneſs* can be no leſs ſuch, either with reſpect to its productive Cauſe or Effects, than are a *Delirium* and *Frenzie*, *Watching* and *Convulſions*, and other like fatal Symptoms of *Fevers*, which are the produce of intercepted Blood and Humours, and an inflam'd Brain. If this diſorder of the *Tympanum* of the Ear and auditory Nerves, be taken off by Evacuations, or an Hemorrhage, (a) which ſometimes happens, in this caſe only, and in ſo far as it is *Critical*, it may be ſaid to be a good Sign, but conſider'd in it ſelf, and with reſpect to its productive Cauſe, always a bad one. For, in a *continual Fever*, if one is ſo much weakened that he neither ſees nor hears, Death is not far off. (b)

(b) Aph.  
49. § 4.

But as every one may obſerve, one ill Symptom comes not alone, and therefore, this of *Deafneſs*, is always to be conſider'd with reſpect to others that accompany it, as alſo, the Nature of the Evacuations, (if they happen) eſpecially that of *Blooding at Noſe*. For when theſe are not Large and Copious, and conſiſting of the Humors that ought to be ſeparated and thrown out, the Diſtemper is ſo far from being mitigated or taken off, that 'tis the more exaſperated, and followed with a train of worſe Symptoms, ſuch as are darkneſs and obſcurity, or redneſs of the *Eyes*, *watchings*, a *Delirium* and *Frenzy*.

Near a-kin to this of *Deafneſs*, is the *TINGLING* of the Ears, that commonly inſues upon ſome acute Diſeaſes. Of this the

the Sick ſometimes complain, and imagine they hear as 'twere the humming of Bees, ſometimes a *Tingling* and *Hiſſing*, and then, a more loud and interrupted Noiſe, which, according to *Galen* is cauſed by a *Flatus* or Wind, raiſed by the inflammation of the Brain, or rarefaction of its humidity, and communicated to the *Tympanum* of the *Ear*. 'Tis not indeed to be doubted, that, when there is an interception of the Blood, in the Arteries of the Brain, and a continual Addition, or acceſſion of new Blood, without being emptied into the Veins, thoſe little *Tubuli*, muſt be ſoon diſtended and enlarg'd, by an exceſſive Quantity of Blood, and thereupon an inflammation of the Part, and a preſſure upon the Brain, muſt inſue. And, there being alſo a Diſtribution of Arteries into the Parts near the *Tympanum*, and their Pulſation being augmented by the inflammation, muſt be propagated, together with a copious Evaporating Heat, to the Membrane of the *Tympanum*, moving and exciting in it, ſeveral kind of Sounds, according to the *Impetus* of the Heat, and pulſation of the Arteries.

But to drop this account of *Tingling* in the *Ears* in Fevers, and other like acute Diſtempers; *Hippocrates* affirms, (a) that, (a) Coar. 'tis a Mortal Sign, if it be continual and <sup>Præſag.</sup> without Intermiſſion, or, comes at the begin. § 2. ning of a Fever; and continues during the Progreſs of it: Such a Symptom being commonly followed by a *Delirium* and *Frenzie*, unleſs it be prevented by Art, or ſome natu-



ral Evacuation. But that in Chronical Diſtempers, or, before the Invaſion of them, this diſorder of the *Ears* threatens a long Continuance of the Diſeaſe, and the more certainly, if it be attended with violent Pains of the Head, Heavineſs and Giddineſs, Slowneſs of Voice, and benum'dneſs of the Hands.

As to the *SMELL* and *TASTE*, 'tis an ill Sign, when all ſorts of Food and Medicine that are offer'd to the Sick are Loathſome and Nauſeous, for it ſignifies a Relaxation of the Fibres of the Noſe and Tongue, or plenty of putrid Humours in thoſe parts, obſtructing the *Eſſuvia* that comes from the Object, and their impreſſion upon the Nerves. The Affections of the *Tongue* are excellently deſcribed by the Learned *Baglivius*, and hath well obſerved that it gives us the ſureſt Signs, by which we may know the State of the Blood, and conſequently that of the Body. For, ſays he, an acid *Taſte* upon the *Tongue*, betrays the acid Conſtitution of the Blood, and of the other Humors ſeparated from it, a Salt *Taſte* ſpeaks the ſaltneſs of the Blood, a bitter *Taſte* gives us to know, that it abounds with bitter Particles, a viſcid, mucous, inſipid *Taſte*, ſpeaks plenty of the like Particles. If the *Tongue* is moiſt, ſo is the Conſtitution of the Blood; if dry, then the Blood is of a dry inflammatory Nature. For this reaſon, we are not to look up-  
on



on this to be one of the worst signs in Sick Persons, that what is offered to them, *tasts* Bitter, Salt, insipid, and the like, but rather when they have a total Aversion to every Thing that may be thought beneficial to them. But more of this and the Sense of **FEELING** in the Sequel.

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## C H A P. III.

*Of Prognosticks taken from Pains.*

**D***ivisio Continui*, the antient Definition of Pain, is by some disprov'd and rejected, as being contrary to daily Observation and Experience. The Reasons adduc'd for this, are these chiefly, namely; That, not only the Bones, but likewise the Scull, and some parts of the *Viscera* and Flesh, can be cut and corroded without any Sense of Pain. And, although it be true, that, not only the Nerves, Membranes and Tendons, are the most sensitive Parts, and that others destitute of these, want Sense and cannot be pain'd: Nevertheless, the most sharp and intollerable *PAINS*, do not happen, when the Membranes or Nerves are dissected, but rather when they are entire. It is likewise certain, that, if the Nerves are prick'd with some sharp Instrument, or corroded with Salt Juices, there follow most sensible and exquisite *Pains*; but, are not caused by a Division of the Continuity of the Fibres, they being so fine and subtil, that they cannot be divided by the sharpest Point. Neither is Pain excited by a Dissolution of the Texture of the Fibres, any other way than by *Contusion*. 'Tis therefore more probable, that all *Pains* are caused by  
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a *Tenſion*, or twitching of the ſubtil Fibres of the Nerves, whoſe Spiritous Liquor being irritated and ſtimulated, produceth an irregular Motion, which being communicated to the Brain, excites thoſe Con-  
vulſions or Paſſions which we call *Pain*. Hence it is, that the moſt violent *Pains* inward or outward, are ſoon mitigated by *Narcoticks*, which, bring a ſleep upon the Mind, take off the *Stimulus*, relax the irritated and diſtractile Fibres, and free them from *Tenſion*.

But, here 'tis to be noted, that all Irritations or Vibrations of the Nerves, and concuſſive Motions of the Parts of which they conſiſt, doth not neceſſarily infer *Pain*, there being many ſuch that have a contrary effect upon the *Mind*, exciting it to a Senſation of Pleaſure, by a gentle and regular Motion of the Nervous Liquid. This then of *Pain* muſt be an irritation and vibration of the Nerves in the higheſt Degree, or ſuch, that muſt bring an uneaſineſs upon the *Mind*, or *Senſio Moleſta*. This will appear more plainly in the common Account of the various kinds of *Pains*, to which we muſt alſo retain, that we may have a better view of the following Obſervations.

Some *Pains* then are *Pulſative*, ( ſo called ) others that are felt as a dead weight lying upon the place affected, ſome with a *Tenſion*, or ſtretching of the Parts, ſome with *Cutting* and *Eating*; others with *Lancing*, *Pricking* and *Stiching*; and ſome that are cauſed by *Benumdneſs*, ſome *Pains*  
are



are *fixed*, and others *transient* and *fleeting*, some are *perpetual*, and others *intermitting*, some are *vehement* and *exquisite*, and others that are *tolerable*; some in the *beginning* of a Disease, others after the *invasion* of it; some affect the *external*, and others the *internal* Parts; some the *Noble*, and others the more *Ignoble Viscera*. All which differences of *Pains* (that only excepted, which is felt as a weight upon the affected Part, which seems to be rather a *Relaxation* than a *Tension* of it) being caused by a more or less Irritation, or Pulsation and Distention of the *Fibres, Nerves, and Membranes*, or Inflammation and Turgency of the *Blood and Humors* in the Parts affected, as in *Abscesses, Nephretick Cholicks, Pleurifies, Dysenteries and Gout, &c.* it will not be amiss shortly to account for some few of them. Thus,

**PULSATIVE PAINS**, as the Name imports, implies an unusual Pulsation in the affected Part, caused by an Interception of the Blood in the Arteries, so that, not having a free Course, it must be partly or altogether obstructed (be the cause what it will) and congested, because it cannot be emptied or derived into the Veins, nor return to the Heart, which is always discharging new Blood into the Arteries. Now, that this unusual quantity of amassed and collected Blood, must distend its own and adjacent Vessels, causing a *Pulsative Pain* to be felt in the Place; I think is very plain. For,  
there

There being no part of the Body except the **Arteries**, and they only, that have this natural Motion called *Pulſation*, of (which, in a State of Health one is not ſenſible; that is, it brings no uneaſineſs upon the *Mind*) when *theſe* come to be diſordered and loaded with a greater than uſual quantity of intercepted Blood, not only their *Pulſation*, but alſo their *Extension* is augmented, which muſt neceſſarily cauſe a *Tenſion* and *Pulſative Pain* in the affected Part.

**PRICKING** and **LAUNCING PAINS**, are likewiſe owing to a *Tenſion* of the Parts, but with this difference; that, whereas thoſe that are *Pulſative* are cauſed by collected and intercepted Blood in the Arteries, theſe, namely *Launcing* and *Pricking Pains*, (ſo called, becauſe they are felt, like the infliction of a ſlight Wound by ſome ſharp point,) muſt be occaſioned by ſome hot, thin, bilious and active Humour, inſinuating it ſelf into, and ſeparating the fine and ſenſible Parts of the Fibres and Capillary Veſſels. And that the *Pains* thus excited, are felt ſometimes in this and ſometimes in that part of the place affected, and alſo ſometimes exquisitely ſharp and cutting, and ſometimes more tolerable and eaſy, muſt be aſcribed to the *Impetus* of the inſinuating Humours, and difference of the Particles that are invaded. This is very remarkable in all Inflammations and *Hot Tumours* that happen in the Nervous Parts, from which there is a conſtant Expiration of hot Particles and *Eſſuvia*,



*fluvia*, but when theſe are intangled and cannot fly off, they muſt invade the Parts of the nearer Membranes and Fibres, and according to their Subtilty and Motion, divide and diſtract, and pull them aſunder a thouſand ways.

Of the ſame nature almoſt are thoſe called *BREAKING* and *DISTRACTING PAINS*, being cauſed by a Divulſion or pulling aſunder of the *Perioſtium*, or Membrane that covers the Bones. That, this is done by whatever can inſinuate it ſelf, (whether it be a Hot, Cold, Thin or Groſs Humour, is all one) into the Parts of the External or Internal Surface, ſmall ſcattered Holes, Cavities and hollow part of the Bones, is very plain. For, it cannot be imagin'd that this fine Membrane that's ſo intimately united to the Bones, can be tear'd and pull'd from them, but with the moſt *exquiſite Pain*; eſpecially when the Membrane is ſtrong, thick, and reſiſtible, ſuch as are the *Pleura*, *Pericranium* and *Dura Mater*, &c. in which, are felt the moſt *intollerable Pains*; and the rather, becauſe thoſe Membranes are naturally diſtended, and don't eaſily yield, to whatever piercing and inſinuating Humours.

Again, *HEAVY PAINS*, to mention no more, ſeem to be different from all the former, for here is no *Tenſion* of the Parts, but rather a Heap and Collection of viſcous, groſs, cold, and Serous Humours, preſſing upon the adjacent Parts: (eſpecially, when there is any defect in the Nerves, Muſcles, or Mem-



Membranes of the Place) For, where-ever such Humours happen to be, the parts are rendred flaccid, and incoherent, without *mutual Contact* or *Tension*, and as 'twere corrupted and putrified, or the Fibres and Capillary Vessels are thickned and swelled, and therefore must press upon some Muscle and Nerve, or both, causing those we call *Heavy Pains*. Add to this, that, the Blood in its Circulating Motion and usual Velocity, coming into any part, the Fibres of which are relaxed and are become flaggy, by plenty of the just now mentioned cold Humours, must be alter'd in its Motion, Stagnate in those relaxed and adjacent Parts, and with difficulty reach to the Heart again. How this also should occasion heavy Pains in any part thus affected, I think is no hard matter to conceive.

By what hath been said, 'tis evident that some, or all, the fore-mentioned kinds of *Pains*, (this last only excepted) may happen in one place, and at the same time, according to the Concurrence of their productive Causes. And, that, when *Pains* become very *exquisite* and *vehement*, the *Tension* of the parts must not only be very great, but also propagated to the whole System of the Nerves, Muscles, and Vessels, by reason of the consent of Parts, either with respect to their Origin, or with respect to their Vicinity and Continuity, but always *mediantibus fluidis aut solidis*, and that such *Pains* may terminate in Convulsive Motions, Palsies and Abscesses, as it often happens in Cholick Pains, exquisite  
Pains

Pains in the Head, and Inflammations of the Brain.

This being premised, in order to know the result and event of *Pains*, it will, no doubt, be granted, that all sorts of them from what ever Cause without, or Concomitant to any other Disease, must be of a bad Character; especially, if they be fixed a long time in any of the Nobler *Viscera*. For they impare the Strength of the Patient, and obstruct the Circulation of the Blood, Concoction, and Secretion of the Humours, as may be observed in that of *Sweat* and other Liquids, which, are Immediately suppressed, upon the Invasion of grievous and exquisite *Pains*. But in acute Diseases, 'tis accounted a Sign of Recovery, when *Pains* invade the Legs and Feet, and happen upon a *Crisis* or Signs of it. But tho' such *Pains* speak an *Impetus* of the Blood and Force of Nature, to throw off the Matter of the Disease upon those more ignoble Parts: Yet, when they go off without any apparent Cause, as the administration of Medicine or Natural Evacuations, the Humours may be justly suspected to have returned into the Mass of Blood, by which, the Case is rendered more dangerous than it was. And a happy Event of a *Crisis* in acute Distempers, depending upon meer Chance, or, a favourable turn of *Nature*, is always uncertain and never to be rely'd on.

'Tis a fatal *Omen*, when *Pains* that commonly accompany the Inflammation of any Part, especially those that are Membranous,

as



as in the caſe of *Pleurifies*, go off, while the Fever continues and increaſes, and cold Sweats break out with a low intermitting and quick Pulse: For, ſuch become *Delirious* in a little time, and ſoon after expire, the Inflammation having terminated in a Gangrene. There is always leſs Danger in *Shifting Pains*, than in thoſe that are *fixed* to one place, becauſe theſe (if accompanied with a Fever) uſe to terminate in an *Impoſthume*. 'Tis likewise a Sign of Inflammation, and that the Humour tends to ſuppuratation, if *fix'd Pains*, with Swelling, and great heat in the *Hypochondria* Breſt and Back, are followed with a *Shivering*.

Near a kin to *Shifting Pains*, are thoſe that are *periodically* exaſperated, and return at a certain Hour; ſuch Pains are not cauſed by any Peccant Humour bred in the place affected, otherwiſe, they would be more conſtant and continual, and therefore, ſeem to be derived from ſome other Part. For, Humane Body is a bundle and compound of Veſſels, Nerves, Fibres, &c. variously interwoven, and correſponding to one another, bending this and t'other way, as they are influenced by the Fluids that move within, as by a Spring, and from hence proceeds that great *Sympathy* and *Conſent* of Parts cauſed by their Vicinity to one another, as that of the Midriff and *Pleura*, the Bladder and *intestinum rectum*, or, by a communication of Veſſels among themſelves, or that of adjacent Parts, or the Similitude and Continui-



ty of Substance, ſuch as that of the Membranous Parts.

Violent *PAINS* in the *SIDES*, are always dangerous. In Old Men they are for moſt part Mortal; Chiefly, becauſe they have not Strength to diſcharge the Matter, and Conſumptive Perſons ſeized with them, become *Delirious* with a high Fever ſoon after, and die in a few days. But when this Pain and the Circumſtances juſt mentioned appears, 'tis a Sign that the Conſumption has been owing to a preternatural connexion of the Lungs with the Ribs.

Such *PAINS* of the *HEAD*, as are violent and continual in acute Fevers, and accompanied with other Ill Signs, as *immoderate Watching*, *Raving*, an *uneasy Reſpiration*, and *thin Urine*, are for the moſt part Mortal. (a) The reaſon of this Obſervation is taken from the productive Cauſe of ſuch Pains, namely, an augmentation of the velocity and quantity of the Blood, in the Arteries of the Brain: an augmented Motion rarifies the parts of the Blood, which, preſſing upon the Membranes of thoſe little Channels, tear and pull them aſunder, cauſing thoſe inſupportable Pains, which, after a long Continuance, are followed with *watching*, *raving*, and other fatal Signs that terminate in Death. And thoſe who are found and in Health, if they be ſuddenly taken with Pains in the Head, become Dumb and fall a ſnorting, Die in ſeven Days (b) unleſs a Fe.

(a) Hipp.  
3. Progn.

(b) Aph.  
51. § 6.

a Fever enſue. For, that takes off the Symptoms of Death and *Stupor* of the Tongue, by a brisk circulation of the Blood in its Channels.

We have always a good Opinion of Pains that are tranſlated from one place to another, eſpecially from the Head, Throat and Breſt, to the Legs and other extreme Parts, but there is no more dangerous Sign, than, when Pains continue after thoſe called *Critical Sweats*.

It has been obſerv'd, that in all Diſeaſes, eſpecially thoſe that are *acute*, if an Inflammation of the *Abdomen* appear and continue, 'tis the Harbinger of Death. But if there be continual Pains about the Belly and *Abdomen*, they ſignify only an approaching Suppuration. (a) And thoſe Pains that invade (a) Aph. the *Hypochondria* or Parts adjacent to the Li- 22. § 7. ver, are taken off, by the acceſſion of a Fever, (b) but 'tis a dangerous Symptom, when (b) Aph. one is taken with Convulſions and Sharp 52. § 7. Pains in the *Viſcera*, (c) and alſo in the (c) Aph. Throat and Ears in acute and ardent Fevers. 66. § 4.



## C H A P. IV.

*Of Prognosticks taken from the outward State and Position of the Body.*

**B**Y conversing with the Sick, we come to know the Occasional Causes of their Distempers; but, they cannot tell us what are the inward Transactions of the Liquids and Solids, and the predominant quality or morbidick Disposition of them, whether 'tis sharp, acid, viscid, inflamable, or coagulating; or, whether the Blood abounds with moist, terrestrious, fiery, or fixed and unactive Particles. But, whatever be the Changes and Alterations that are acted in the Springs and Liquids of Humane Body; yet, their Effects must be always expos'd to our view, and come under the Cognizance of our Senses. Thus, we see when the body is hot or cold, dry or moist, which indicates its inward State and Condition, and, what will be the Issue and Event of the Distemper.

*HEAT* is the effect of *Motion*, and that of Humane Body, is owing to the Circulation and Velocity of the Blood; when it is brisk and Spiritous, the *Heat* is distributed to all the extream Parts, and perceptible in the *Skin*; which, by the *Thermometer*, is found



found to be naturally hotter by one Degree, than the *Heat* of the Air in Summer, leſſer by four Degrees, than the Heat of boiling Water, and yet leſſer by Twelve, than that of hot Iron.

This *Heat* of the *Skin*, is not produc'd by that of the *Heart*, as was believ'd by the Antient Phyſicians. For, it is neither hot nor humid, but as it is waſhed by the circulating Blood, eſpecially in the Arteries, where its *impetus* and reſiſtance is greateſt; ſo that according to the Degrees of Velocity, and augmented Motion of the Blood, ſo is the *Heat* of the *Skin*, and the *Heat* of the Parts, in proportion to their Vicinity to the Heart. When the muscular force and power of the Heart, by which, the Blood is diſtributed into all the Parts of the Body, comes to be weaken'd and enervated; Or, which is the ſame, when the Pulse is languiſhing and weak, the *Heat* of the Body muſt likewise be diminifhed. For, the *Pulse* is the Diffuſion of *Heat*.

Humane Body, is a compound of various and different Channells and Liquors that move in them. The firſt of which have a determinate Size, Number, Density, Elafiicity, Figure, Proportion and Combination, from which they have the Denomination of Arteries, Veins, Nerves, Fibres, Lymphatick Veſſels, Bones, and the like. The Liquids conſiſt of fluid Particles, ſome whereof are groſs, others fine and ſubtil, and adapted to Motion; which, when it is equal and always the ſame; ſo likewise is the

*Heat* of the Body. But, thoſe Liquids being ſubjected and expoſed to a thouſand Changes, Alterations and Impreſſions from without and within, by the acceſſion of foreign and Heterogeneous Particles, the variety and different Degrees of *Heat* and *Cold*, which we ſee in Sickneſs and Diſtempers, muſt needs inſue, beſides that which is owing to different Ages in the ſame Body, difference of Sex, Stature and Proportion in a State of Health.

Thus, ſuppoſing an equal contraction of the Heart; Thoſe who are of a low, are hotter than thoſe of a larger Stature; for, the Parts of the firſt, are leſs diſtant from the Heart than thoſe of the laſt, and the Velocity of the Blood is diminifhed according to the ſame diſtance from it, and alſo the *Heat* of the *Skin*, which, as was obſerv'd, is the Effect of the Circulating Motion of the Blood. Hence it is, that *Cæteris paribus*, a Child is hotter than a Youth or Stripling; and a Youth is hotter before, than after he is arrived at his full Growth and Stature. For, both have a greater quantity of Blood, circulating within narrower Limits, in proportion to their Body and ſolid Magnitude, than thoſe of more advanc'd Years. Their Bones being more ſoft and Cartilagineous, their Fibres more open and Lax, and their ſolid parts fuller of Moiſture, and cannot come to that hardneſs and conſiſtency, that's obſervable in Old Age, without diminifhing and exhausting the Liquid of Blood, of which they Conſiſt.



'Tis a commonly received Opinion, that, Men are hotter and dryer than Women: That they are dryer is plain and certain, but ſome will not allow that they are hotter, for the ſame Reaſons that Children are of a hotter Conſtitution than Men, Women, *Cæteris paribus*, having more Blood, and being for the moſt part of a lower Stature, and ſooner arrive to the height of it than Men, ſuppoſing always an equal Contraſtion of the Heart. Now, that Women are more abounding in Blood than Men, will never be denied, by thoſe who know that the pure and ſincere Blood that's monthly evacuated, is cauſed by its *Plethora*, and not by *Fermentation*; as by ſome is erroneouſly believed.

This was to be premiſed, for the better underſtanding the State of the Body, from the *Heat*, *Coldneſs* and *Moifture* of it in Sickneſs; eſpecially, in Feveriſh Diſtempers, in which, as we have ſeen, the *Heat* of the *Skin* is greater or leſſer, according to the Velocity and rarefaction of the Blood. By how many degrees this Heat is greater in Fevers than in a natural State, is not here to be inquir'd into; whatever it be, 'tis always greater than the uſual Heat, to which the nearer is approaches there is the leſs Danger. But, tho a gentle and moderate Heat has obtained this Character of a good Sign; Yet, 'tis carefully to be conſider'd, whether it be equal all over the Body, not that there ſhould be the ſame Degree of it in the remote and extreme Parts, as in thoſe adja-



cent to the Heart, in which it is greateſt; but whether it be proportioned to the diſtance from it.

The reaſon of this Caution, is, the frequent miſtakes that happen in *Prognosticks*, taken from this *moderate Heat*, by which, not only the Patient, but likewise the Phyſician, has been impoſed on, there being ſometimes a latent Malignity (as 'tis called) not obſervable, either by the Pulse or *Heat* of the Body, both having a reſemblance, to that of one in Health, while the Flame is raging within, ſcorching and burning up the *Viſcera*. The more that the Blood is diſin-gag'd from, and hath attenuated the Heterogeneous Humours, by which it was intrangled and intercepted in its Motion; ſo much greater is the *Heat* of the *Skin*, as we ſee in Ardent Fevers: But, in thoſe that are Malignant, there are always ſome viſcous and groſs Humours mixed with the Blood, that checks it in its Motion, and makes the *heat* of the *Skin* to be the more *temperate* and *moderate*. And,

We are further to obſerve, whether this *moderate, gentle* and *equal Heat* of the *Skin*, in feveriſh Diſtempers, be likewise accompanied with an equal and univerſal *Softneſs* and *Moifture*. For, a burning Heat is always Dry and without *Perspiration*, as in an *Epiala* or *Lipuria*, and the *softneſs* and *moifture* of the *Skin* is *unequal*, as in Malignant Fevers, in which the *Hypochondria* are for the moſt part dry and hard, and alſo in thoſe who are *Hætick*, whoſe *Hypochondria* are

are, (eſpecially the right) remarkably *hot*, chiefly, becauſe it contains the greateſt part of the Liver, in which the Bile is ſeparated, and being in this Diſtemper hotter than in a Natural State, it muſt cauſe a diſproportioned Heat in the place; beſides, that their Skin is thick and rough, and the Heat of it unequal, eſpecially after eating.

But though the *Heat* that's commonly obſerv'd in Fevers, be more intenſe by ſeveral Degrees, than this juſt now mentioned; yet, if it be accompanied with the ſame Conditions of *Equality*, *Softneſs* and *moiſture* of the *Skin*, 'tis not to be accounted one of the Dangerous Signs: For, it ſpeaks a brisk and free Circulation of the Blood, prevents the Inflammation of the *Viſcera*, promotes inſenſible Perſpiration and Coction of the Humours. And if the *inequality* of the *Heat*, is obſerved to be in the extreme Parts, *i. e.* if the Legs and Feet, Arms and Hands are hotter than uſual, there is hope of a Solution of the Diſeaſe and *è Contra*. (a)

The Heat of the Blood, and conſequently, (a) Aph. 1. § 7.  
that of the Skin, being (as we have ſeen) the reſult of its Motion and Velocity, 'tis plain, that the *Coldneſs* of the *Parts* that happen in Fevers muſt be owing to a diminiſhed Motion of the Blood, either from groſs and viſcous Humours obſtructing its Motion. Or, becauſe its Velocity being diminiſhed in every Section of the Arteries, according to their diſtance from the left Ventricle of the Heart, it muſt be very inconfiderable in the Capillary Arteries of the ex-



treame Parts excepting thoſe of the Brain, in which, thoſe Veſſels being very numerous and near to one another, the Motion and Heat is more preſerv'd than in thoſe Parts that are more remote. Or, this diminished Motion of the Blood and *Coldneſs* of the *Body*, eſpecially, that of the extream Parts, may be cauſed by an Interception or Defect of Animal Spirits, not ſeparated from the Blood in the Brain, and diſtributed to the Fibres of the Heart, to promote its pulſive Motion; in this caſe likewiſe, the *Heat* is diminifh'd, and a *Coldneſs* brought upon the *Body*.

But, whatever be the Cauſe of it, *COLDNESS* of the Parts is always ſuſpected, and in continual Fevers, is, for moſt part Mortal, eſpecially in thoſe of a weak Conſtitution. In Chronical Diſtempers, it is not ſo dangerous, nor in Old People, whoſe extream Parts, namely, the Feet and Hands, Noſe, and Ears, are uſually very *Cold*, neither is the *Coldneſs* that happens in intermitting Fevers, nor upon the firſt invaſion of thoſe that are continual to be much dreaded. But, which is chiefly to be obſerv'd with *Hippocrates*, (*b*) is, when the Head and Feet are *Cold*, and at the ſame time, the Sides and Belly are intenſly *hot*, and when after a moderate or Intenſe *Heat*, the extream Parts become *Cold*, and never after recover their uſual, or that *Heat* that commonly accompanies Fevers. Theſe are two Caſes that have been obſerved to be of fatal Conſequence. There

(b) 2. Prog.  
4.



There is yet another, namely, a *Viciſſitude* of *Heat* and *Cold*, coming either on a ſudden or gradually : But whatever be the manner of the *Acceſſion*, it ſpeaks an *Omenous* and dangerous diſorder in the Blood and *Spirits*, an obſtruction in its Motion, or at leaſt a *Stag-* nation of it in ſome of its Channels. This *Viciſſitude* of *Heat* and *Cold*, is to be conſidered, with reſpect only to continual Fevers, and Pulmonary Diſtempers, For, that which happens in intermitting ones, are more eaſily check'd and controul'd by the *Peruvian Bark*, and other *Febrifuga*, to the unſpeakable Benefit of Mankind.

*SPONTANEOUS WEARINESS*, and the *Position* of the Body in the diſorders of it, may ſeem to be of ſmall Moment. But, that they may deſerve ſome conſideration in the *Prognosticks* of Diſeaſes, will appear in the Sequel. Not to mention that 'tis often a Forerunner to ſome acute Diſtemper, (c) as (c) Aph. every one muſt know, that is but moderate. 5. § 2. ly ſkill'd in the Nature of Humane Body. It ſometimes ſeizes all the Parts, eſpecially the Muſculous and Cutaneous Ones, ſometimes the Back in acute Diſeaſes, and ſometimes the Spleen, Belly, the Midriff, and Stomach, and ſometimes the Arms, Thighs and Legs, and as it ſeizes different Parts, ſo likewise at different times, as at the Beginning, and ſometimes at the height and declination of the Diſeaſe.

*WEAKNESS* and *WEARINESS* are manifeſtly different; For the firſt is owing to a defect,

defect, and want of the motive Faculty. But *Weariness* is a certain Passion of Anguish and Uneasiness, that comes upon violent Motions of the Body. In animal Motions, a spirituous Juice is instill'd from the Nerves into the Fibres of the Muscles, and the want of this Liquor causeth Weariness. Or, this Spirituous Juice is distilled into the Mouths of the Nerves in the Muscles; and therefore when the Spongy *Tubuli* of the Nervous Fibres are once soaked with it, it may be continually supplied without interruption. But, after a great expence of it; those small Vessels come to be exhausted and dried, Leaving a *Weariness* in the Place. Thus it is caused by want or obstruction of the Nervous Liquor, by a Lesion of the Organs, and by an *infarctus* or *Plethora* of Humors. Hence it is, that in some acute Distempers, Strength is gone all on a sudden, not because there is want of Animal Spirits, but because their Motion is obstructed, interrupted and suspended, and this also may be the reason, that Plethorick Bodies, are soonest affected with the Sense of *Weariness*.

But, now to consider it as a *Symptom* of a *Fever*, or some such acute Disease, in which, when it comes upon the Thighs and Arms, accompanied with other good Signs, it tells us that the Morbifick Matter, as was formerly observed of *Pains*, is cast upon those ignoble Parts, and that the Disease tends to a Solution. For, it is then only, that the Patient comes to be sensible of this *Tensive heaviness* and *weariness*, especially, in the Cutaneous



neous Parts, of which, he could have no Senſe in the raging height of his Diſtemper. When the Humours are concocted, and their groſſer Parts refin'd, and rendred fit for excretion, they are thrown out, *quâ data porta*, by Sweat, Stool, Urine, &c. But, if they reach no further than the milliary Glands of the Skin, there they are lodged, till they be carried off ſome other way. For, in the ordinary and natural Motion of *Fluids*, that ſerve either for nutrition or excretion, there are neceſſary Paſſages and Channels, through which they run eaſily. But, in extraordinary Caſes, as all Diſeaſes are, Nature finds out extraordinary ways, by which it throws out the noxious matter, or at leaſt puts it in a leſs dangerous place. But after all, a *Spontaneous Wearineſs*, is a dangerous Sign, when it is accompanied with *Pains* in the *Head*, *Thirſt*, *Watching*, *Weakneſs*, and other like Symptoms, even at the declination of the Diſeaſe, and when the peccant Humour is not duly concocted.

The *Poſition* of the Body, deſerves likewise to be regarded and conſider'd; For, by it we come to know its vigour and weakneſs. Tho' Nature be ſurpriſing and wonderful in all its Laws and Actions; yet, who is not ſtruck with amazement that contemplates her in the Motions of the Parts of Humane Body? When one is in Health, how ſurpriſingly great is the Power and Energy of his Muſcles? How many different Ways doth one manage them at his pleaſure? excepting ſome few, the management of which Nature

has

has reserved to her self, as that of the *Heart*. But, upon the Invasion of a Disease, he that could make the Ground tremble under him, is not able to move himself without help, and if he has yet any little Strength, he moves himself into a thousand Postures, endeavouring to be quit of his Pain and Uneasiness. From those various Positions of the Body, we come to know his State and Condition, and the Event of his Sickness.

The *SHIFTING* of *POSTURES*, cannot be ascribed to any thing else, than to the raging Heat, which the Sick Person finds all over his Body, especially in his Breast, occasioned by the excessive Heat in his Blood, and sharpness or irregular Motion of the Animal Spirits. This makes him peevish and uneasy, and sometimes he voluntarily turns himself, this and 'tother way; for ease and mitigation of his Pain. But, he is also sometimes under a Necessity of altering his *Posture* of Lying, by an Irritation and *Stimulus* of the Nervous Liquid, and its irregular flux into this or 'tother Muscle.

To inquire, whether the Actions of the Muscles, which are the Organs of Motion be performed by Contraction or Turgency, caused by the influx or Motive Power of the Blood, pression of the ambient Air, impulsive Motion of the Heart or Animal Spirits, would be besides our purpose. Neither shall we inquire how and after what manner, the usual Motions and muscular Actions are suspended and interrupted. Only, it may be  
ob-



observ'd, that there is greater difficulty in lying upon either ſide, than upon the Back, becauſe the Body muſt be ſuſpended, or reſt upon the narroweſt Surface or Point, the Feet, Hands and Head, being alſo accommodated accordingly, ſo that the ſide muſt be the center of Gravity of thoſe Parts. Now, tho' this Poſture is moſt adapted to Motion, or, for turning to the Breſt or Back; yet to begin and continue ſuch an *Æquilibrium*, as lying upon the ſide is, a greater quantity of Animal Spirits is requiſite, than can be ſuppoſed to be in the Body, or ſeparated from the Blood in time of Sickneſs.

Every Body knows, that the *Position* and *Poſture* of lying in time of Sickneſs, muſt be the ſafeſt which approaches neareſt to that which is uſual, in a State of Health; But, this rarely happens in ſome acute Diſtempers, by which the Patients Strength is ſo much diminiſhed, that he muſt lie upon his Back, which is a common and ordinary Sign of great Weakneſs, and the Poſture of dying Perſons, and therefore juſtly ſuſpected.

But, this *Poſture* hath been commended, in as much as it reſreſheth the wearied Patient, all the Muſcles being then at reſt from *Tenſion*, excepting thoſe of the Breſt and Heart: And that, becauſe thoſe in Nephretick Cholicks and other Diſtempers, uſually throw themſelves upon their Backs, and are eaſed by that *Poſture*. Whatever be of this, yet 'tis certain, as was juſt now obſerved, that an involuntary lying upon the Back is a  
Sign

Sign of great Weakneſs, and yet more Dangerous, when one cannot turn himſelf to either ſide, and when aſſiſted by others, his Body reſembles a Load or weighty Burthen ; or, when his Hand, that unwilling and with difficulty is reach'd to the Phyſician, falls down like a Stone by his ſide. And 'tis needleſs to obſerve how *omenous* it is, when the Head is erected towards the Pillow, it falls backward, diſcovering the Throat and Fore-part of the Neck ; or, when the Chin is lifted up, it falls back immediately towards the Breſt : For, theſe are well known to be certain Signs of inſtant Death ; As alſo to ſleep with open Mouth and hanging Jaws ; for, both denote an inward Inflammation, or an extream weakneſs, and irrecoverable relaxation of the Muſcles, and diſbending all the Springs of the Machine.

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## C H A P. V.

*Of Prognosticks taken from the Pulses.*

**T**IS now well known that the *Heart* is a *Muscle*, of the same Nature with those that serve to move the joints and other Parts; that it consists of strong Carnuous Fibres, which are easily contracted, but cannot be extended in length, or distracted; that they are swell'd and puſt up to a hardness, especially towards its Point, in *Pulſation*, and, that its Motions do not depend upon our Will and Pleasure, that some of its Fibres are external and others internal, both arising from, and terminated in its *Basis*; That, the first sort descend from the *Basis* in a Spiral Line, from right to left, towards the *Point*, where, making a Demi-Circle, return again Spiral ways from the left to the right, towards the *Basis*; and that, the internal Fibres are straight and parallel, descending from the *Basis* to the *Point*, and returning to the *Basis*, in which they are inserted and terminated.

The *Use*, as well as the wonderful *Structure* of this noble *Viscus*, is also notorious, it being the Principal Engine in the Circulation of the Blood, which, being received into its Ventricles, namely, that of the *Vena Cava*, into its *Right*, and that of the Pulmo-

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nary Vein (after having been ſubtilized and attenuated in the Lungs) into its *Left*, is thence diſtributed by the Arteries, to all the Parts of the Body, according to the Laws of its Circulation.

But, to ſuperſede any further inquiry into the Structure of the Heart and Mechanism of its Contraction and Dilatation, we are only to obſerve, that the Artery adjoining to it, not being capable to admit and contain all the Blood that's ſqueez'd into it, at every contraction of the Heart: Or, there being a conſiderable diſproportion, between the Capacity of the left Ventricle of the Heart when it is dilated, and that of the Artery next adjoining to it. 'Tis therefore neceſſary, that, the Membranes of this Artery, notwithstanding their Firmneſs and Tenſion, ſhould be dilatable, and yield to the *Impetus* and *Truſion* of new Blood at every contraction. Now, the Contractions of the Heart being frequent, neither this adjoining to it, or the other Arteries can ever be emptied. For, the new Blood at every Contraction, muſt preſs upon, and push that already in the Arteries, towards their furtheſt Extremities, to be thence deriv'd into the Capillary Veins, for the Continuance of the Circulation.

Now, this Rencontre of the old (may it be ſo called) and new Blood cannot happen, without a notable Reſiſtance and Concuffion of the Arteries; eſpecially, that adjoining to the Heart, where the Muſcular force and impetus of the Heart is greateſt; there-



therefore, the Impreſſion that's made upon this at every Contraction, muſt be propagated to all the Arteries in the ſame inſtant of time; only with this difference, that the Impreſſion or *Impetus* is always greateſt in their extremity neareſt the Heart.

But, this *Dilatation* of the Arteries at every *Contraction* of the Heart, is of a very ſhort continuance. For, they being dilatable *Tubes*, as was obſerved, are ſwelled and enlarg'd at every *Contraction* or *Pulſation* of the Heart. But, immediately after the Pulſation, they recover their former State, the Portion of Blood that was ſqueez'd into them, being deriv'd into the Capillary Veins, by the Contraction of the Tranſverſal Fibres of the Arteries.

Thus, by a continual and ſucceſſive *Dilatation* or *Contraction* of the Heart and Arteries, is the Vital Fire continued and preſerved. But, the Blood or Liquid that circulates in them, being expoſed to many Impreſſions and Interruptions, both from without and from within; It is therefore conſidered, in all the Diſtempers and Diſorders of the Body ( of which it is the great Spring, ) as the ſureſt Teſt, by which its State and Condition may be beſt known. For this End, its pulſation in the Arteries is always adverted to, becauſe it points out and informs us what's tranſacted in the moſt retir'd Corners of the Machine; eſpecially in acute Diſtempers, the Chronical ones, proceeding frequently from a Diſorder in the Solid Parts, or, from a vicious indigeſtedneſs and

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groſſneſs of other Fluids, are not ſo nicely regarded or known as the former, which are more dangerous, and come to theit Period in leſs time.

It would be beſides our purpoſe, as well as unneceſſary, (the moſt ſolid Doctrine and finiſhed account of the Pulſes, and differences of them, being already to be had from the Excellent *Bellinus*) to make any further Advances on this Head, were it not in order to have the beſt *view* we can, of their *Prognoficks*, and what's portended by them.

We are then to obſerve with this great Man, that the Pulſation of the Arterie, being a ſucceſſive Contraction and *Dilatation* of it, cauſed by the impulse of the Blood, and known to us by the touch and Application of the Finger; the difference of the Pulſes, even in a natural State, muſt be owing to the *Contraction* and *Dilatation* of the Heart, the State of the Blood and Arteries. For, when the Heart is contracted or dilated, ſo are the Arteries at the very ſame inſtant, if the contraction of the Heart is *frequent*, ſuch is the *pulſation* of the Artery, if it is Weak and Languiſhing, ſo is the Pulſation of the Artery, and its preſſion upon the Finger hardly perceptible; again, if the Heart move but ſlowly, *i. e.* a more than uſual time is ſpent betwixt one Contraction and another, ſo doth the Artery. Now, that thoſe and many other Changes and Alterations, even in a Natural State, may happen to the Motions of the Heart, according to the different Ages, Conſtitution, Paſſions of the Mind, and Motion



tion of the Body, &c. is very plain.  
But,

As the different Pulſations of the Artery, is owing to the various and different Contractions of the Heart, ſo are theſe to the different State of the Blood, namely, as it is of a greater or leſſer quantity. For, ſuppoſing a free Circulation, and a great quantity of Blood to be in the Body, 'tis certain, that a proportioned quantity of the whole ſtock, muſt be derived into the Heart, when 'tis dilated, and Squeezed out of it by Contraction into the neareſt Artery; which for the Reaſons above mentioned, muſt make the Pulſation the greater, and *è Contra*, when there is only a ſmall Quantity of the circulating Blood. And this, beſides its various State and diſpoſition, with reſpect to the Age, Conſtitution, Season of the Year, Climate, Paſſions of the Mind, Motions of the Body, before or after Eating, Sleep and Watching. And, Laſtly, The difference of the Pulſes, are partly owing to the different Capacity and Amplitude, Hardneſs and Thickneſs, Tenſion and relaxation, &c. of the Membranes of the Arteries. Thus, when they are narrow, the Blood muſt make the greater Preſſion upon their Sides, and the Pulſe is the ſtronger, and *è Contra*, if they are of a greater Amplitude.

Thus far concerning the Cauſes of the Differences of Pulſes in a Natural State: To carry our Inquiries further, or to account for the many and different ways, by which,

the Pulſations of the Arteries may be altered and changed in the diſorders of Sickneſs, would bring us under a neceſſity of inquiring into thoſe, by which, an Indiſpoſition may be brought upon the Blood. But this being inconfiſtent with our preſent purpoſe, I ſhall only obſerve, that whatever it be, it muſt be aſcribed to an Exceſs or Defect of it in its *Quantity*; or, an Alteration in its *Quality*, by an Augmentation or Diminution of its component Parts, or whatever can diſorder their *Cohesion*. The Effects of which upon the Arteries, having given Birth to a Nauſeous and unneceſſary Catalogue of the Differences of Pulſes, it may be proper enough, to retain to thoſe only that are moſt remarkable. And theſe are,

1. With reſpect to Motion, and then the Pulſe is *Swift* or *Slow*. 2. With reſpect to the Blood and *Impetus* of the Heart, the Pulſe is *Strong* or *Weak*, *Full* or *Empty*, according to the greater or leſſer Quantity of Blood ſqueezed into the Artery. 3. With reſpect to the Artery, the Pulſe is *Hard* or *Soft*. 4. The Pulſes are *equal* or *inequal*, with reſpect to themſelves, or, one part of the Artery to the other. Beſides theſe, there are other Compound and Singular Differences of the Pulſes, as the *Intermitting* Pulſe, the *Undulatory* and *Creeping*, the *Hæctick* and *Convulſive*, &c.

But in ſhort, when an Artery is dilated more than is uſual, the Pulſe is then ſaid to be *vehement* or *ſtrong*. If it be leſs dilated  
than



than is uſual, 'tis then *Weak* and *Languish- ing*. And if betwixt any two *Dilatations* of the Artery, there is more time perceived than is uſual, the Pulse is called *ſlow*. And if leſs time is obſerved, 'tis then ſaid to be frequent: Again, if the Tunicle of the Artery, from whatever Cauſe is harder than uſual, it cauſes a *hard Pulse*, and *è Contra*. Laſtly, an *equal* and *unequal* Pulse, are only a *Species* of a *quick* and *ſlow* one. For, if either of them be always like to it ſelf, then is it *equal*, and if it be not conſtantly like to it ſelf, 'tis then *unequal* and *intermit- ting*.

So that the moſt uſeful Differences of the Pulſes, and which fall under the Cogni- zance of the Phyſician, are, the *ſtrong* and *weak*; *ſoft* and *hard*, *inequal* and *intermitting*, *quick* and *ſlow*. Of the laſt of which we are always doubtful; For, a *ſwift* and *ſlow* Pulse and the Degrees of it, depending upon the Meaſure of time, can hardly be diſtin- guiſhed by the application of the Finger. In one in ordinary Health, and in a Natu- ral State, there are commonly reckon- ed, three Thouſand ſix Hundred Beats or Pulſes in the Artery in one Hour, and eve- ry one of theſe to be equal to a Second, or the three Thouſand ſix Hundredth Part of an Hour, ſo that the duration of the Dilatati- on of the Artery, muſt be ſo ſhort and in- conſiderable, that 'tis known with great dif- ficulty: eſpecially in thoſe who are young, and whoſe Circulation is accompliſhed, in a

very little time, with reſpect to thoſe of a more advanc'd Age and larger Size.

But, if an Universal Obſtruction happen in the ſmaller Arteries, ſo that the Blood in them cannot be derived into the Veins, the Pulse is found to be ſenſibly very *ſlow*, for, the Preſſion upon the Artery, in this Caſe, continues for ſome time, and likewise that upon the Finger: But one in this State muſt die in a little time. Again the Pulse comes to be remarkably *ſlow*, when the Blood by reaſon of its viſcidity, runs with difficulty upon the Surfaces of the Arteries, notwithstanding the *Impetus* of the Heart.

Now, the reſult of all theſe Differences of the Pulſes, and what they *portend* and *Prognosticate* in thoſe Diſtempers that are acute, is reducible to theſe few following Obſervations.

1. A Pulse that's little or inconfiderably alter'd and chang'd from that which is natural, but is only ſomewhat more *frequent* and *ſtronger* in the Beginning of a Fever, tell us, that, it is either a Continual one, of one or more days: Or, that the Fever is malignant. To diſtinguiſh the one from t'other, we are to conſider if the Pulse be equal, and like to a natural one, excepting that it is *ſwifter* and *ſtronger*. For, being accompanied with theſe Circumſtances, it denotes the Fever to be of the firſt ſort, and if it be unequal the Second; chiefly for this Reaſon, that in a Quotidian or Continual Fever, the Motion of the Blood is only a little greater, and



and its quantity augmented, *i. e.* rarified, and ſo is the Pulſe proportionably, with reſpect to time, or the number of its Beats upon the Artery, and preſſion that it makes upon the Finger. For, in ſuch Fevers, the *Texture* and *Craſis* of the Blood is not much altered from its natural State, or conſiderably vitiated ; only, its Motion is greater than uſual, which, nevertheless, may be equal to and conſiſtent with its ſelf, and therefore the *Contractions* and *Dilatations* of the Heart and Arteries muſt alſo be equal.

But in *malignant Fevers*, the Blood is loaded with an unequal viſcidity and fluidity ; or, conſiſts of Parts, whereof ſome are ſo tenacious, that, they cannot freely circulate in the Veſſels, eſpecially in the Capillary Veins, in which the Motion is weak and languiſhing ; others again are more fluid. But, both the one and t'other ſort, either ſeparated or mixed, in an unequal Proportion muſt Circulate in the Veſſels at different times ; ſo that in Malignant Fevers, the tenacious and groſs Humours being thus mixed with the Fluid Parts, may produce the ſame Pulſe that's obſerved in thoſe that are in Health, whoſe Blood conſiſts of unequal Fluids. The Blood therefore of thoſe in malignant Fevers being unequally fluid, and in different Parts of the Body, *i. e.* in the Veins and Arteries, and alſo in different Parts of them, 'tis no wonder, that the Pulſe is ſometimes *ſwift* and *ſtrong*, and at other times *ſlower* and *weaker* than is uſual, that is, that the Pulſe is unequal.

2. A Pulse that's *weak* and *swift*, and by degrees comes to be weaker than usual, and *stronger* after eating, and when the Food is digested, returns to its former State, signifies an *Hætick* Fever. For, after eating, the *Chyle*, raiseth a new Heat in the Blood, and as it were inflames it, or quickens the Animal Spirits, and renders them more brisk by the addition of warmer and rarified Blood, which makes the greater dilation of the Arteries, and consequently the stronger Pulse. But, when this little Portion of New Blood comes to be exhausted, the Pulse returns to its former state. Thus it likewise happens in Diseases of the Breast, in which, the *Prognosticks* taken from the Pulse, cannot be affirmed to be certain. For, in those affected with Pulmonary Distempers, nothing departs sooner and more easily from its natural State, than doth the Pulse.

3. An *Intermitting Pulse*, is, for most part fatal, and *Prognosticates* certain Death; yet, in Fevers it is not so dangerous in Children and Old People, as in those of a middle Age. For, in Children the Blood is not yet much refined and attenuated by circulating through the Lungs (which it doth only after the Birth of the *Fœtus*) and consequently is not very equally fluid, and the Animal Spirits being unequally separated from the Blood, the contraction of the Heart, with respect to its self must be unequal, and the Pulse intermitting. And in Old Men, the  
Channels



Channels in many Places are ſunk and flagged, and their ſides fallen together; that 'tis no wonder there ſhould be an obſtruction in their Blood, and ſometimes an intermitting Pulse. But, it is more dangerous when this intermiſſion of the Pulse is cauſed by the violence of Diſeaſes, eſpecially by feveriſh ones, in thoſe of a middle Age, in whom the State of the Animal Spirits, which influence and promote the Contractions of the Heart, is beſt known by the Pulse; ſo that if it be ſtrong and equal, there is ground to hope for a recovery of the Patient, notwithſtanding the appearance of ſome ill Symptoms. But, on the contrary; If the Pulse is weak, wavering, and intermitting, tho' all other Symptoms promiſe fairly, we are always apprehenſive of it. For, ſuch a Pulse is commonly the Harbinger of Death.

Could we be allow'd to inquire into the productive Cauſes of this fatal Symptom, 'twere no hard matter, to bring ſuch as are not only ſuſpected, but certain and undeniable. And theſe are (to name ſome of them) a defect, or an Obſtruction of the Animal Spirits in the Brain, intercepting their Flux into the Fibres and Nerves of the Heart. For, the Heart being a Muſcle it muſt neceſſarily be moved by the Concourse of the Blood and Nervous Liquid, and when this is wanting, it can neither be contracted nor dilated, and conſequently there can be no Pulſation of the Artery. The ſame Effect happens upon a Preſure of the Trunk of the Artery adjoining to the *Basis* of the Heart,

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by an exceſs of Fat or Swelling, and Tumor of the Glands, too much Water in the *Pericardium*, or that which comes from a Dropſy in the Breſt, *Polypus*'s which have their Conſtruction from the Fibrous Parts of the Blood, and their *Make* being Oblong and Ramous, numbers of them may happen to be aſſociated in the Heart and other Parts, making Carnuous Concretions, ſo deeply radicated that they grow to a conſiderable bulk, and diſſuſe themſelves all along the *Arteries*, Swellings, Stones, &c. in the Artery, or Auricles of the Heart, a great Fermentation of the Blood within its Ventricks, a defect or *Plethera* of the Blood, obſtructions in the pulmonary Vein, great Pains at the Heart, and Paſſions of the Mind, and a great many ſuch like. But, to proceed,

4. A *ſtrong and brandiſhing Pulse*, accompanied with other good Symptoms, is one of the beſt Signs, for it indicates a free Circulation of the Blood, a flux of the Animal Spirits into the Heart, and a ſeparation of them from the Blood; a ſoundneſs of the Brain and integrity of its Veſſels. For which reaſons alſo, a *weak and empty Pulse* is always dangerous, ſo are likewise the *quick* and *ſlow* ones: For, the one tells us that the Blood is either exhausted, or that it ſtagnates in ſome of its Veſſels, or that it is too much diſſolved and rendred too fluxible: And the other, namely, a too *ſlow Pulse* ſignifies a great *Lentor* or viſciduity in the Blood, or an obſtruction of its Circulation through  
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its Channels, neither of which can be without Danger.

But here we are to obſerve, that, a *weak, unequal* and almoſt *imperceptible Pulse* in the *beginning* of a *Fever*, tells us, that it is a continual *Periodical* or *Intermitting* One, chiefly becauſe all continual Periodical Fevers, may be conſider'd as compounded of many intermitting Ones; or, rather becauſe they proceed from an unuſual viſciditiy in the Blood. In the beginning of a Paroxiſm, when this Humour invades the ſmall Arteries of the extream Parts, as are thoſe of the Brain, only a ſmall Portion of the Animal Spirits can come from thence, for this reaſon, the Contraction of the Heart muſt be the weaker, and the *Pulse* almoſt *imperceptible*: But becauſe there is always ſome ſeparation of thoſe Spirits more or leſs according to the viſciditiy of the Blood, therefore, in thoſe Fevers the Contractions of the Heart muſt be ſometimes *weak*; ſometimes *quick*, and ſometimes *ſlow*. Of this Nature alſo is the *Pulse* of *Scorbutick People*; eſpecially, when they are affected with a ſort of an intermitting Fever, in the Declination of which their *Pulse* is *weak, ſlow* and *unequal*; in the *Status* of it is *brandiſhing* and *hard*, and ſometimes *quick, weak* and *unequal*, that one would think, the Sick could not live a few Hours; but when the fit is over, the *Pulse* is like that of one in perfect Health.

Laſtly,

Laſtly, A *hard Pulse*; ſignifies a *hardneſs* in the *Artery*, cauſed by its thickneſs, *Tenſion* or Dryneſs, if theſe Circumſtances be owing to Nature, there is leſs danger than when the *Tenſion* proceeds from a Stuffage of Blood, or any other fix'd and hard Matter in the *Artery*. A *hard Pulse* occaſioned by want of moiſture or dryneſs of the *Artery*, is a Sign of Heat and Inflammation, and of *Pleurifies* when the *Artery* is much diſtended, and the vibrations ſtrong tho' there be no other Signs.

But after all, tho' amongſt all the Animal Actions, by which we inquire into the State and Strength of the Sick, none is of ſo much Regard and Concern as that of the *Pulſe*; yet, many of its Signs being only probable, chang'd and alter'd by very flight and ſometimes hardly obſervable Circumſtances, we cannot be cautious enough in our Obſervations or *Prognosicks* concerning them; eſpecially, in acute Diſtempers, which, many times by falſe Auguries, expoſe the Phyſician to no ſmall Reproach and Contempt. It may not therefore be improper to advert to a few things here ſubjoin'd, not to invalidate what hath been ſaid concerning the *Pulſes*, but to make us the more Circumſpect and Cautious in forming our *Prognosicks* concerning them.

We are not then to think that the *Pulſes* do always and certainly point out to us the State and Condition of the Sick, the Quantity and Quality of their Blood, and the *Impetus* of their Heart, &c. For nothing is  
more



more obvious than to ſee the natural Pulse of one Man to be plainly different from that of another: The contraction of the Heart in ſome being more *powerful* and *ſtrong*, in others *ſlow*, and in a third ſort *quick* and *frequent*, and a thouſand the like; not to mention the different Ages, Sex, Conſtitution and the *Sex non-naturalia*, &c. And,

It ſometimes happens, that, there is an extraordinary conformation of the Artery in the Wriſt, to which we moſt commonly apply, when we inquire into the Nature of the Pulse. Thus, it may be very hard, or be turned from the moſt common and uſual Place, and therefore occaſion no ſmall Alteration in the Pulse. In ſome, this Artery hath been ſo ſmall, that it could hardly be perceived. In others, it hath been found in the Back of the Hand, between the Thumb and the foremoſt Finger, (and not at all in either of the Wriſts) perceptible, not only to the Finger, but alſo to the Eye. And ſome have had it in the back part of their Thumbs. Again, Some who have loſt much Blood by being wounded in the Arm or Wriſt, ever after have had a more languiſhing Pulse in that Part, than in the other. And ſome without any Wound or Hemorrhage have had a ſtronger Pulse in one Wriſt than in the other.

Neither is it improbable, that, *clots* of *Blood*, *Worms*, or ſome ſuch thing in the Artery, may ſo confound and alter the Pulse in one Arm, that it may be quite different to that of the other; or, that there may not be

be ſome *impoſthume*, or diſorder near the axillary Artery, or Lobs of the Lungs, while the Heart is ſound and entire. But that which is moſt obſervable, is, that there may be an intermiſſion of the Pulſe, tho' there be no intermiſſion in the Contractions of the Heart. We have ſeen that the Pulſation of the Arteries, is owing to the Contraction of the Heart; yet, it often happens, that, the Heart is found to be Contracted, when there is no *Dilatation* of the Artery, there being little or no Blood, thruſt into it from the Heart. So that a quick and ſtrong Pulſe; *v. g.* doth not always proceed from the State of the Blood. But ſometimes alſo from an extraordinary irritation of the Heart, manner of its Situation, and other ſuch like Circumſtances, Convulſion of the Arteries, Paſſions of the Mind, exquisite Pains, and a *Plethora* of Blood, &c.

Neither muſt we always have a good Opinion of a *Laudible Pulſe*, or, altogether condemn a *weak* and *unequal* one; eſpecially, in the Paroxiſms of exquisite Pains in the Head, and of the Cholick, &c. in which, the Pulſe is often very *weak* and ſometimes *intermitting*, tho' a brisker one appears after the Paroxiſm. Therefore in theſe and other like Caſes, nothing that's certain can be known from the Pulſe alone, or *predicted* concerning it in this or other Patient, unleſs we know what it was in its Natural State, which ſeems to be



be very difficult, as well as impracticable, the Phyſician being obliged to give his Advice to all known and unknown. Beſides that, 'tis a Thouſand to one if ever he inform himſelf of the Strength, Frequency, Equality, Order and Tone of his Patients Pulse, as it was in a natural State, and when he was in Health. Again,

It hath been often obſerved, that, ſome have died when their *Pulse* hath been indifferently *ſtrong* and *equal*, &c. and that others have recovered under a *Weak* and *Intermitting* one; ſo that, the Signs taken from the Pulſes, even with reſpect to the Strength of the Patient, are ſometimes very uncertain; As in Hiſterick Fits and Faintings, as well as in Fevers, in which, ſome have been carried off, whoſe Pulse hath been little or no ways different from that of one in perfect Health.

For theſe and many other Reaſons that could be added, are the Pulſes to be conſidered with the greateſt Attention, Caution and Deliberation, not only with reſpect to the Strength of the Patient, but alſo to all the Appearances of his Diſtemper, as all the Differences of the Pulſes are conſider'd with reſpect to one another. 'Tis not enough to apply ones Finger to the Artery, as ſome do while their Thoughts are intent upon ſomething elſe; or, to enquire into the Nature of ones Pulse, when he is not free from all Paſſion of the Mind, and  
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Motion of the Body. Left the Alteration that may be made upon it, be aſcribed to the Diſeaſe. Neither is it proper or commendable to feel ones Pulse at the firſt approach. For it often happens, that not only Women and Children, but others alſo, have ſome Commotion in their Minds, more or leſs, at the approach of the Phyſician, whoſe Prudence and Conduct ſhould lead him to conſider the Nature and State of his Patients Pulse, not only in both Arms, but alſo at different times.

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## C H A P. VI.

*Of Prognosticks taken from the Urine.*

**T**HE circulating Blood, being the great Spring of the Animal Machine, and the active Principle, by which all its Actions and Motions are exerted, it must therefore be of a certain and determin'd *Craſis*, limited Quantity, Motion, Proportion, and diversity of its Component and Constituent Parts. And no less necessary is it, that it be continually supplied, by reason of the constant Expence and Consumption of it in Animal Motions. Besides, that its Nature and Constitution implies a necessity of Dissolution, and if it be not daily repair'd, it would soon become vapid and unactive, and our Bodies should soon lose their Form and Figure, and die at last, when the Vessels and Liquors in them, is spent and exhausted. For, if according to *Sanctorius*, we perspire Fifty Ounces in the space of Twenty four Hours, how soon would the Stock be quite spent, without daily reinforcement? or, regaining as much perspirable Matter, *i. e.* the Produce of the third Concoction of our Food and Nourishment, which is separated and diffus'd from our Bodies by the *Viscera* and Cutaneous Glands into imperceptible *Effluvia*.

This daily reparation of our Blood is owing to the Food and Nourishment we take into our Mouths, where 'tis broken by the Teeth and moisten'd by the Spitte, and thus descends into the Stomach, where 'tis bruised into a Cream or Pulse, which we call *Chyle*, and in this State is thrust into the Intestines, by the muscular Force of the Stomach, and at last (not to trace it further) by a wonderful Artifice and Contrivance, into the right Ventricle of the Heart, where it begins to be chang'd into Blood.

But, for this purpose, our Drink is equally necessary with the solid part of our Food, that the gross and unactive *Chyle* should be rendred the more fluid to be admitted into the Veins and *Vasa minima* and continued in Circulation for the Nutrition of the Parts. Now when these Ends are accomplished, the remaining part, being unnecessary and useless, is separated from the Mass of Blood in the Reins, convey'd into the Ureters, and voided by the *Urethra*. Not by an imaginary Fermentation, or a pretended Magnetic Vertue and Attraction in the Glandular Reins, but more probably, and consistent with the Animal Oeconomy and Laws of Mechanism, by the impulsive Motion of the Blood through the Emulgent Arteries. For, by this impetuous Motion, its Parts are divided and separated, especially, those more Liquid ones of the *Serum*, which are driven into the Pores of the Glands of the Reins, from whence they are distilled and ouzed in-



to the *Pelvis*, and thence into the *Ureters* and *Bladder*.

But, be it as it will, This is the *Serum* or *Urine*, the *inſpection* of which is ſo uſual, in order to know the State of the Sick, the Nature of Diſeaſes, how long they will continue, and what will be the *Event* and *Iſſue* of them.

But, for as much as this Matter implies a neceſſity of inquiring into the *natural State* of *Urine*; or, what it naturally ought to be in its *Subſtance*, *Quantity* and *Quality*; we are therefore ſhortly to obſerve, that, by the firſt is to be underſtood a certain Conſiſtence in the *Urine*, that it may be almoſt as flexible as Common-Water, only with this difference; that it is more or leſs ſuch, as it is loaded with more ſolid and groſs Parts, which, only after excretion are diſcovered in the *Contents*, either upon its *Surface*, in the *middle*, or at the *bottom*. And the laſt of theſe, called *Sediment*, ſhould be of a *whitiſh Colour*, *Light* and *Equal*, of an indifferent *Quantity* and without *Smell*. Of the ſame Nature alſo are the other ſorts of *Contents*, namely the *Nubecula* and *Eneoremata*. For, theſe likewise are *Sediment*, only they conſiſt of finer Parts.

Now, tho' all theſe are natural, and commonly obſerved in the *Urine* of thoſe in a State of Health; Yet, they are vaſtly different with reſpect to the *Sex*, *Age*, *Conſtitution*, and *Season* of the Year, &c. Thus the *Urine* of thoſe of a *hot Conſtitution* is *thin*, of a *ſmall Quantity*, and *high Colour*.

And quite otherways with thoſe whoſe *Conſtitution* is Cold. The *Urine* of *Women*, is not of ſo high a *Colour* as that of *Men*. But, 'tis loaded with groſſer *Sediment*. In hot *Climates*, the *Urine* is thinner and higher Coloured and hath leſs *Sediment*, than in the Colder *Regions*. The ſame difference is to be obſerved in *Summer* and *Winter*. Nay, it is altered and changed every Hour, according to the Heat and Cold, Reſt and Labour, Anger and Sadneſs, the Nature of the Food, before and after Child-bearing, Fasting and Eating, Watching and Sleeping, and a Thouſand the like.

But its Nature, and the Principles whereof it Conſiſts, is beſt known by its *Analysis* either *Chymical*, or, by the more vulgar Experiments made upon it by *Evaporation*. For, we find that its ſolid Parts are *Salt* and *Earth*, or a *Duſty Sediment*. And if it be dried upon a Glaſs or any transparent Object; we ſee by the *Microſcope*, that, this *Salt* repreſents the *Figures*, of *Vitriolick*, *Alumenous*, *Tartarous*, *Nitrous* and *Common Salt*. Which, when it is mixed with the watry Part of the *Urine*, takes place at the bottom, or, ſwims in the middle, and its fineſt Parts appear near to or upon its *Surface*, according to their *Gravity*, a little time after it is voided, and hath loſt the Motion or *Impetus* it received from the Blood in its Circuit.

Hence it is, that we cannot know what are the Contents of *Urine*, or make any juſt obſervations upon't; unleſs the Veſſel or *Urinal* be kept without Motion for ſome time,  
and



and alſo from Heat, *i. e.* A Heat which is greater than that in Summer, and from too great Cold, or that which is greater than in Summer Nights. For, an *Exceſſive Heat*, promotes the confus'd Motion of the *Salts* and *Earth*, and *Cold* ſuddenly congeals them, before they can either be Precipitated or Separated, ſo that the *Urine* muſt be always muddy and troubled.

Again, the *Colour* of *Urine*, is altogether owing to the *Proportion* of *Salt* and *Earth*, or *Tartar* mix'd with its *Aqueous* Part, ſo that, if there be little or nothing of thoſe in the *Urine*, its *Colour* muſt be like that of *Water*, and when there is ſome conſiderable quantity of them, eſpecially of *Earth* and *Tartar*, which is an *Opacous* Body, the *Urine* muſt be the darker and more blackiſh, and where there is only a ſmall Quantity of it, and a due proportion of *Salt* and *Water*, it muſt be like that of one in Health, *i. e.* not altogether Watry, but of a *Yellowiſh* or *Citron Colour*. But, tho' the *Colour* of *Urine*, be chiefly owing to an Alteration of its Conſtituent Parts; yet we muſt carefully obſerve, that, it is ſometimes occaſioned by the Addition and mixture of Corrupted and Purulent Matter, Blood, and the like, which, not only alters the *Colour* of the *Urine*, but alſo that of the *Sediment*; eſpecially, when it reſembles *Scales*, *Bran*, *Meal*, and ſuch like. For, ſuch *Appearances* in the *Sediment*, proceed from viſcous and purulent Humours, which intangle and thicken the

*Solid Parts of the Urine.* Hence likewise are the *Hairs*, and *Caruncula*, and *Membranous Sediment*, which must be aſcribed to the Disorders of the Reins, Ureters, or Bladder. And, in one word, whatever circulates with the Blood, ouzes or is ſeparated from it, when the Veſſels are broken or diſtended, as are *Bile*, *Sand*, *Stones*, *Worms*, and ſometimes the *Blood* it ſelf not only alters the *Colour*, but alſo the *Sediment* of the *Urine*.

This being the *Nature* of *Urine*, 'tis no hard Matter to conceive, how many and different ways, it may be chang'd and altered from its natural State, either by the Organs of Secretion, when they are vitiated; or, when there is not a due Velocity in the Blood and Cohesion of its Parts; or when the Conſtituent Parts of the *Urine* are not broke off, and mix'd with the Blood to be ſeparated from it, in one or all of theſe Caſes the *Urine* muſt become unnatural, *i. e.* defective or exceſſive in its *Quantity*, *Quality*, and *Subſtance*. Now the firſt of theſe, being ſometimes greater, ſometimes leſs, and ſometimes equal to our Drink, and therefore ſo undetermined, that nothing certain can be affirmed concerning it. It will therefore be more for our purpoſe, only to conſider ſome of the *Appearances* in *Urine*, and what they *Prognosticate* with reſpect to the two Laſt, namely its *Subſtance* and *Quality*.

Fiſt then, *Urine* is ſometimes too *thin* and *watry*, which, by what hath been ſaid, is owing to a leſſer *Quantity* of *Salts* and  
*Earth*



*Earth* than is uſual or natural, either becauſe the Particles of thoſe Solid Parts, are too groſs to be rendred flexible and ſeparated in the Reins : Or, becauſe they are not broke off from the Parts of the Body and mix'd with the Blood : But, be it as it will, this *thin watry and clear Urine*, in *Fevers*, *Prognosticate* imminent or approaching *Pains* in the *extream Parts*, eſpecially in the *Head*, and tells us that the *Fever* is not an *Ephemera*, in which the Secretions are little altered or vitiated, and therefore is the more dangerous, becauſe the groſs Humours come not into the *Reins*, in that quantity that's neceſſary to take off the Diſtemper, but is obſtructed in the *Extream Parts* or *Capillary Veſſels*, where the *Impetus* of the circulating Blood is weakeſt, and at the greateſt diſtance from the Heart.

But this is to be underſtood only with reſpect to this *thin Urine* in the *beginning* of the *Fever* ; For, if it continue clear, thin, and Watry for ſome time, the *Symptom* is yet more dangerous, chiefly, becauſe it denotes a Stagnation in the *Capillary Veſſels* of the *Brain*, (where the Motion of the Blood is weak and unactive, of little Power and Force, and eaſily obſtructed) in which when theſe *Humours* or *Salts* are once fixed, not only the *Urine*, that ſhould have been loaded and impregnate with them, becomes *thin* and *clear*, but alſo thoſe finer Veſſels of the Brain, muſt be diſtended and overſtretcht, cauſing violent and intolerable *Pains*, and at laſt an *Inflammation*, *Delirium* and *Frenzie*,

in which Diſtempers the *Urine* is for the moſt part *thin* and *watry* and without *Sediment*.

This ſort of *Urine* is likewise commonly obſerved to come upon violent Commotions and Perturbations of the *Mind*, and doth not retrieve its natural Colour, till the Paſſion is quite gone off. And there is no Sign more certain of an imminent *Hysterick Fit*, than when from a *Yellowiſh*, the *Urine* turns to a *watry thin* Colour. It is likewise a fore-runner to *Convulſive Paroxiſms*, and in *Spasmodick* Caſes, the *Urine* is almoſt always *thin, clear, and plentiful*; ſo that it ſeems that thoſe Diſeaſes are either produced or fed by the *Salts* of the *Urine*. But, it is yet a more dangerous Sign, if about the beginning or *Status* of a Diſeaſe, the *Urine* being *redish*, and much loaded with *Salt* and *Excrementitious Contents*, changes gradually to a *Pale* and *thin* Colour, and if the *Pulſe* become *quicker, weak* and almoſt *wavering*, if the *Tendons* Start, if talkativenefs, fearful Dreams, and ſuch other Symptoms appear.

Moreover, *thin* and *clear* *Urine*, continuing to be ſuch throughout the whole Courſe of Chronical Diſtempers, is always ſuſpected and dangerous. Becauſe, as was formerly obſerved, the Matter and Humours where-with the watry Part ſhould have been impregnated, is, after a long Diſtemper impacted and detained in the Body, that it can neither be concocted or thrown out. But, if the *Urine* is only ſometimes *thin*, and at  
other



other times loaded with *Sediment*, and again becomes *clear* and *Transparent*, and always inconſiſtent with it ſelf, it not only *Præſages* a lengthning of the *Disease*, but alſo *Death* to the *Patient*, eſpecially in *Fevers*, if this tedious and ſlow *Concoction*, and ſeparation of the *Humours*, happen upon *Critical days*, in which *Nature* ſhould be moſt vigorous, and make its laſt effort to throw them out.

Secondly, *Groſs* and *thick Urine* being ſuch by reaſon of its *Contents* or *Solid Parts*, that is, the *Salt*, and *Tartar*, or *Earth* mix'd with it, is quite different from the former. For, it tells us that the *Peccant* and *Crude Humours*, are more or leſs diſſolved, or fixed in the *Capillary* and other *Veſſels*, or rendred *fluxible* with the *Blood*, and ſeparated in the *Reins*, in proportion to the *Quantity* of the *Liquid* and *Solid Parts* or *Contents* of the *Urine* and *difference* of its *Colour*. For, the more that the *Urine* is impregnate with *Humours*, *Salt*, or *Tartarous Earth*, ſo much leſs in *Quantity* is the *Liquid Part* and of a darker *Colour*, and è *Contra*. But, tho' the *State* of the *Blood* and *Condition* of the *Sick*, is pointed out by the *Contents* of the *Urine*; Yet, it is chiefly to be conſidered and examined with reſpect to the ſudden or ſlow *Changes* and *Alterations* that are made in it, ſometime after it is voided. Thus,

*Hippocrates* (a) obſerved, that *Urine* be- (a) Aph.  
ing *clear* and *thin* when firſt voided, and 81. § 4.  
forthwith becomes *muddy* and *troubled*, ſignified

74 *Subjugium Medicum.*  
fied an approaching Concoction, or that it was already begun. But, if it was piffed *muddy*, and continued to be fuch, like *Horse-piffs*, it fignified a rarefaction of the Humours, and *Prognosticated* approaching Pains of the Head. 'Tis true, this laft fort of Urine, indicates a great Agitation and Ferment in the Component Parts of the Humours, and a partial Coction of them, and in fo far there is no better Sign. But, feeing we dont know what the nature of this Concoction is ( for, fuch may happen at any time of the Difease) or how long it will continue, *Predictions* concerning it, muft be the lefs certain, unlefs fome Light be had from the other Symptoms of the Diftemper. And that this *Subjugal Urine* fhould denote fome approaching diforder in the Head, feems to be unaccountable, tho' the truth of the Obfervation, hath been fometimes confirmed, efpecially, when at the fame time the *Pulse* is *low* and *weak*, and the Patient is *sleepy*, and affected with a *heavinefs* in the Head. For, in this Cafe, a *Lethargy* is not far off. But, on the other hand, if he is *restlefs* and inclines to waking, is *thirfty* and his Tongue parched, it foretells a *Delirium* or *Convulfions*.

Thirdly, A *Light white* and *equal* Sediment, hath always been obferved to fignifie a perfect Coction of the Humours. But, if this *Sediment* appears in the beginning of a *Fever*, it tells us that it muft be an *Ephemera*, or a *malignant one*. For, in the firft, neither the *Maſs* of Blood, nor *Secretions* are



are much vitiated, and therefore the *Urine* must be like that of one in Health, whose *Sediment* is *light* and *equal*, because the Blood circulates equally, *i. e.* its Motion is still the same, and it being likewise such in *Malignant Fevers*, the *Urine* as well as the *Pulse* of those in that Distemper, must be like that of those in Health.

Fourthly, *Redish* or *Flame-coloured Urine*, having a *red* and *light Sediment*, in the beginning of a *Fever*, is a Sign of an approaching *Crisis*; especially, if the *Fever* be continual. For, such *Sediment* must proceed from much separated *Salt* and *Earth* (supposing always that the *Urine* is Plentiful and Copious) which necessarily takes off the *Lentor* or febrile Matter of the *Fever*. But, if there be any Signs of an *Intermitting* one, and the *Sediment* resembles *brick dust*; Instead of a Perfect *Crisis*, there is only a partial one, *i. e.* a true *Paroxysm* of an *Intermitting Fever*, for such is the *Sediment* of those in that Distemper. Add to this, that *Redish Urine*, having a *Light Sediment*, is, one of the best Signs in *Pleurisies*. For, the *Colour* indicates a due mixture of the *Liquid* and *Solid Parts* of the *Urine*, and the *Light Sediment* a laudable Separation, both which fairly promise a speedy Recovery, and an End of the Distemper. And the same is to be said of *Greenish* or *Yellow Urine*, having a *white Sediment*, for, such *Colours* come nearest to that which is *natural*.

But,

But, whatever is ſignified by the *Sediment*, either *White* or *Red* that falls to the bottom, the ſame, but with leſs Certainty is ſignified by the *Nubeculae*, which are only a *Lighter Sediment*, and according to the *Gravity* of its Parts, takes place in the *Middle*, or near the *Surface* of the *Urine*. The Appearance of thoſe *Nubeculae* is a certain Sign of a partial Concoction of the groſſer Parts, *i. e.* that Concoction or diſſolution of the Humours is commenced. For Clouds in the *Urine* commonly appear before the *Hypoſtaſis* or *Sediment*, which requires more turns of Circulation in the Blood to a perfect and accompliſh'd Separation. However, 'tis plain, that, the nearer the *Nebeculae* or Clouds approach to the bottom, ſo much the nearer they come to be *Sediment*, which is nothing but a *Nubecula* plac'd at the *bottom*. And if this lighter *Sediment* appear upon thoſe called *Critical* days, in which commonly there happens a notable contraction of the Fibres and Capillary Veſſels, there is no more certain Sign of a Solution of the Diſeaſe. But, when this or any ſort of the Contents come to be Interrupted, ſo that ſometimes there is an Appearance of *Sediment*, of the *Eneoremata* or *Nubeculae*, and ſometimes none at all, it threatens a *Lengthning* of the Diſeaſe, the Humours being unequally concocted, or collected in different Parts of the Body, and therefore unequally ſeparated.



Fifthly, *Piffing of Blood*, (than which no *appearance of Urine* in whatever diſtemper, is more dreaded, every one being afrighted to look upon this *Liquor* out of its *Chanel*) muſt be carefully conſider'd in all its *Circumſtances*. For, ſometimes it proceeds from a ſlaggineſs or weakneſs of the *Capillary Veins* and *Arteries* of the *Ureters*, *Bladder*, and *Urethra*, accompanied only with a wearineſs of thoſe *Parts* without any *Fever*: And in this *Caſe*, portends no great *Danger*, providing there be ſome *Intermiſſion*, and the *Parts* recover their *Tone* and *Vigour*. But, if it continue a long time, tho' there be ſome *intermiſſion*, it threatens no ſmall danger, becauſe a *Rupture* of thoſe *Veſſels*, is juſtly ſuſpected, eſpecially, when this voiding of *Blood* happens in *Fevers*, and is accompanied with *Pains*. For this reaſon likewiſe, *Bloody Urine* muſt be a fatal *Symptom* in the *Small Pox*, in which *Diſtemper* it often happens, eſpecially to *Young People*, and thoſe in the *Flower* of their *Age*. For, the *Blood* ſometimes rages ſo violently, and is ſo mightily inflam'd; eſpecially, if they have been accuſtomed to *Spirituous Liquors*; that it breaks its *Chanel*, falls into the *Bladder*, and is evacuated by the *Urinary Paſſages*.

Sixthly, The *blackiſh Colour* in *Urine* having alſo a *black Sediment*, is a fatal and *Pernicious Sign*; for it muſt proceed from a *Predominancy* of the *Solid Parts*, eſpecially  
of

of the *Earth* and *Tartar*, the *ſerous* Part being either exhausted or detained in ſome part of the Body ; and when the *Urine* is very much loaded with this *Sediment*, it denotes a Corruption or an irreparable *Relaxation* of all the Parts ; and in *intermitting Fevers*, when the *Nubeculæ* are of a *blackiſh Colour*, it threatens a *Quartan Ague*, or an *Erratick Ague*. And reducible to this is the appearance of *Oyl* incorporated with, or appearing upon the *Surface* of the *Urine*, in thin Membranes and Cobwebs, which always ſignifies a melting of the fatter Parts.

Laſtly, A *Suppreſſion* of *Urine*, when it proceeds from a *Convulſion* of the *Sphincter* of the Bladder, or the like, always threatens a *Strangury* ; but if it be owing to the *Ileon* Inteftine, the caſe is more dangerous, and mortal : For when this Gut preſſes upon the *Ureters* or Bladder, and adjacent Parts, the *Serum* cannot be ſeparated from the Blood, or voided by the *Urethra*. Of this nature likewise is the *Suppreſſion* of *Urine* that's occaſioned by an exceſſive *Cold*, whereby the Blood is ſo much coagulated, or the *Sphincter* ſo long contracted, that there can be no Separation made of the *Urine*. Neither can that be leſs dangerous, which comes upon a *ſucceſſion* of *Heat* and *Cold* in the Loins, and accompany'd or follow'd by *Sweat*. For, this Diſtemper muſt proceed from ſome Diſorder in or near to the *Reins*, as by viſcous and mucous Matter, Sand, Stones, and the like, obſtructing the Paſſage of the *Urine*, and there



thereupon ſometimes a *Shivering*, and then a burning *Heat* muſt inſue, according to the *Flux* of the Blood into thoſe Parts. And if *Sweat* (which is nothing but the *ſerous* part of the Blood mix'd with the finer parts of *Salt* and *Earth* and caſt out by the Cutaneous Glands) break out upon this *Suppreſſion* of the *Urine*, the Danger muſt ſtill be the greater, becauſe the *Serum*, that's remaining, becomes the more glutinous, thicken'd and leſs fluxible, cauſing intollerable *Pains*, which are follow'd by *Death*.

Now, tho' theſe few Particulars, if duly conſider'd, may, I think, account for the *Nature* of *Urine* and all its *Appearances* and the *Prognosticks* made concerning it; yet there is no leſs *Caution* to be obſerv'd with reſpect to *Predictions* taken from *Urine*, than was above-mention'd concerning the *Pulſes*. 'Tis commonly ſaid, that of all others the *Inſpection* of *Urine* gives the moſt certain *Signs* to the Phyſician, upon which he may eſtabliſh his *Prognosticks*, with reſpect to the *preſent* Circumſtances of his Patient's Diſtemper, and the *Event* of it. Thus the Divine *Hippocrates*, (a) *Qui vero ſuperfuturos ex morbo, & morituros, eoſque quibus pluribus diebus, & paucioribus perſeverabit morbus, rectè prænoſcere volet, is intelligentia comprehenſam omnium ſignorum doctrinam, æſtimare debet, & eorum vires inter ſe collatas ratione expendere, velut ſcriptum eſt, eum in aliis, tum in urinis, & ſputis, ubi una & pus & bilis tuiſſi rejecta fuerint.* He that would form juſt *Predictions* concerning the

(a) Præn.  
p. 46.

(a) Vide  
Foreſt. de  
incerto ac  
fallaci uri-  
narum ju-  
dicio.

the Death or Recovery of his Patient, or how long his Diſtemper will continue, muſt have an exact knowledge of all its *Symptoms* and *Signs*, eſpecially thoſe of the *Urine*, &c. that they may be compared with one another. Nevertheless there are ſome, (a) who pretending to be leſs credulous, or, as they call it, ſuperſtitious than others, not only condemn and ſlight all *Auguries* taken from *Urine* in their daily Practice, but likewise tell us, that there is more uncertainty than Truth in the Obſervations that are commonly made upon't; and that *Inspection* of *Urine*, tho' conſider'd with other *Signs* and *Appearances*, afford nothing that's certain, *i. e.* that all Obſervations concerning this Excrement may ſometimes be probable, but ſeldom demonſtrative, and in one word, that are meer Conjectures. And,

On the other hand, there are a ſort of Men, whoſe baſe Avarice and cunning Impudence, for a ſmall matter, will impoſe upon the ſimple Vulgar, pretending to know the Nature of the Diſtemper, the Cauſe and Occaſion of it, as well as its *Issue* and *Event*. Nay, they will diſcover the Sex, Age and Impregnation, and what Member is affected, and tell you where the ſick Perſon lives, and that he was hurt by his Ox or Plough, or had fallen from his Horſe; and tho' ſupinely ignorant of the *Medical Art*, will divine what has and what will happen, preſcribe Remedies, and fairly promiſe to cure incurable Diſeaſes by *Inspection* into their *Urine*, at any Time or Diſtance, which an honeſt and ingenious



ingenious Man will never pretend to, being convinc'd that all this requires an exact knowledge of the *natural* and *habitual* Urine of his Patient, without which 'tis no easy matter to know that which is *præternatural*, eſpecially at a diſtance, and after it hath undergone a thouſand Changes and Alterations. Beſides, that all in the ſame Diſtemper void not the ſame ſort of Urine, by reaſon of their different Diet and Conſtitution, &c. the Urine being, as was above obſerved, vaſtly different, even in a State of Health. Add to this, that the different Conditions of Urine, whether complex or ſeparate, are common to many Diſeaſes, which are, if not contrary, yet moſt unlike to one another, and owing to different Cauſes. Thus a *groſs*, *thick*, and *high-colour'd* Urine is voided by thoſe in a *Fever*, as well as by thoſe that are *ſcorbutick*, or affected with an *Aſcites*, &c. The Urine of thoſe that are affected with *melancholy* Diſorders, *Worms*, *bad* *Digeſtion*, and *Nephretick* *Colicks*, is *pale* and *thin*; and the ſame *clear* and *watery* Urine preſages a *Delirium* and *Death* to thoſe in *Fevers*, but no ſuch thing or danger to thoſe that are affected with the juſt mention'd diſtempers. And 'tis to be obſerv'd, that the Urine of thoſe in *Fevers* is inconfiſtent with it ſelf, and varies more or leſs, not always according to its proper *Genius* and *Nature*, and in proportion to its Cauſe, but ſometimes, according to the *Conformation* of the *Reins* and other Organs of

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Secre-

*Secretion* and different State of the Blood.

For theſe and many other Reaſons which might be adduc'd, it may be affirm'd, that *Predictions* and *Auguries* taken from the *Urine*, unleſs it be conſider'd with the greateſt care and circumſpection, may be uncertain and precarious, not only in *peſtilential*, but leſs *malignant Fevers*, and even in thoſe that are *intermitting*, in *Pleurifies*, *Quiniſies*, and other internal *Inflammations*, in which Diſtempers the *Signs* of Death and Recovery, taken from the *Urine*, have been found to be falſe and ill grounded. Again, the ſame *Urine* has given occaſion to *prognosticate* both *Life* and *Death*. Thus in *Dropſies* and *pulmonary Diſtempers*, the *Urine* has reſembled that of one in health, while the Patients have been cut off and ſuffocated in an inſtant, So that a bare *Inſpection* of *Urine*, even in the *preſence* of the *Sick*, without comparing and conſidering all the other Symptoms of his Diſtemper, will prove a weak Foundation to raiſe *Predictions* upon. For,

Tho' the *Appearances* of *Urine*, as we have ſeen, points at the State of the Blood, and Organs of Separation and Diſgeſtion, eſpecially in *Feveriſh* Diſtempers, with more certainty than any other *Signs*; nay, moſt part of other Diſeaſes, whether *Acute* or *Chronical*, and their Changes and Alterations, *i. e.* the Crudity and Concoction of the Morbiſick Matter, the Increate  
and



and Decrease, or Exacerbations and Mitigations of the Disease and *Event* of it, may be known by the *Urine*, and therefore the *Inspection* of it is come to be so usual and customary. But no less regard is to be had to the other Symptoms at the same time, that they be compar'd with one another, especially in the morning or at night after the first accomplish'd Digestion, and when all the Blood has frequently circulated through the *Emulcents*, which it must do in seven or eight hours, being always assured, that the *Urine* is neither alter'd by *Food* or *Medicines*, the *Urinal* or the *Air*; all which make their specifical Alterations in this *Excrement*, especially the last, which, as was already observ'd, *congeals* it when it is too *cold*, and *attenuates* it when it is too *hot*.

Neither is *Urine* to be *inspected* immediately after it is voided, for then it discovers nothing almost but its *Colour*, so that some *time* is necessary, that its contents may be separated and distributed to their proper Places, according to the *Diversity* and *Gravity* of their Parts, after the Motion that was impressed upon them by that of the Blood, is taken off. And when it is too *old*, or long kept, its natural State and *Texture* may be alter'd by a supervening Putrefaction, which renders the Observations that are made upon't to be false and uncertain.

And lastly, some regard is to be had to the Changes and Alterations made upon *Urine* by

Drink and Medicines. For thoſe that are made with *Rhubarb*, *Saffron*, *Worm-ſeed*, in *Cider* and *Wine*, dy the *Urine* with a *red Colour*, as on the other hand, Small Drink, drunk plentifully with any Acid, delutes and renders it *limpid* beyond expectation.

(a) Cent. 5.  
Hiſt. 90.

And *Bartholinus* (a) obſerv'd, that *Urine* was made *black* by a liberal eating of Berries, as 'tis tinctured with a bloody Colour by eating the *Ficus Indica*; and the Effects of *Asparagus* and *Turpentine* are well known.

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## C H A P. VII.

*Of Prognoſticks taken from Immoderate Watching and Sleep.*

**W**AKING and SLEEPING are both neceſſary in their turns to the Preſervation of Humane Life. When thoſe are changed and altered from their natural Order, and exceed their juſt Limits, by whatever influence, they either become the Cauſe of Diſeaſes, or are numbred amongſt their moſt dangerous Symptoms. *Watching* is a time of Action, by which the Liquor in the Nerves, tho' often ſupplied from the Stock and Maſs of Blood in the Veins, is diminished and exhausted. For, there can be no Action without *Motion*, nor *Motion* without wearing and impairing the *Springs* and *Organs*. This is notorious in natural *Waking* and *Watching*, but much more ſo when it comes to be Unnatural and *Immoderate*, as it often happens in ſome Diſtempers, in which, tho' the Limbs and Muſcles are quiet and at reſt; yet, there is a continual *Flux* and *Reflux* of the Animal Spirits in the little Organs and *Tabuli* of the Brain, or are for moſt part determined that way, if they are not altogether, or much obſtructed in their Motion. 'Tis true, that *Lunaticks* will wake a long and incredible time, without any remarkable ex-

Expenſe of the Animal Liquid, tho' they don't either Eat or Sleep by which it may be repaired. But this may be owing to the Ex-tream dryneſs both of the Liquid and Solid Parts of their Body, that are become ſo fixed, that there can be no *Perspiration*, and conſequently the leſs Conſumption of the Animal Spirits, or need of Nouriſhment and *Sleep*. Which,

On the other Hand, is a Ceſſation or reſt from all Action, or a voluntary *Contraction* of the *Muscles*: The Fibres being relaxed and unbended, and the ſeveral Members reduc'd to a quiet *Position* and *Æquilibrium* and freed from the Pain and uneaſineſs of Labour and Action. And ſo is the *Mind* from its intense Thoughts, Study, Anxiety, Cares and the like, in which, it is imploy'd while we are *awake*. In one word, 'tis by *Sleep* that Nutrition, Concoction and Inſenſible *Perspiration* is promoted; and the *Animal Spirits*, thoſe refined and *Active Particles*, and *little Springs*; ſo neceſſary to the Conſtitution of the *Animal Oeconomy*, are repaired and recruited, and ſtock'd up for the Future Actions and Duties of the *Animal Life*. But to return to,

*Waking*, which, when it is *Natural* and *Moderate*, quickens the Senſes, and renders them Brisk and Freſh, Diſtributes the Heat of the Body equally into all the Parts; perfects the Concoctions, and promotes the Evacuation of Excrements. But, when it comes to be *immoderate*, it brings a Thouſand Diſorders both upon *Body* and *Mind*.  
The



The reason of which is plain, if we consider, that when there is an excessive or greater *Heat* in the *Blood* than is usual, it must become the *drier* by continual *Perspiration*; and thereupon the Nerves and solid Parts, (which by a constant supply of Moisture from the Blood, are kept in a due and natural State) must also be the more contracted, dry and less vigorous, to actuate and stimulate the *Muscles* and other Parts, the *Brain* only excepted, where the Extremities of the Nerves and Fibres are most implicated and twisted, and the Liquor in them when in too great quantity, most active and irregular in its Motion, and therefore directly contrary to *Sleep*.

Now, as to the result of this *Symptom* in *Fevers* and acute Distempers, *Hippocrates's* (a) and every ones Reason plainly suggests, (a) Aph. that the *Consequences* of it must be fatal. 3. § 2. For, as was already observed, *Immoderate Watching* exhausts the Spirits and dries up the Humidity of the Blood and Brain; Generates *Bile*, and inflames it, and when the Liquor of the Nerves is much wasted and consumed; or, supposing it to be only obstructed in the *Brain*, that it cannot actuate the *Heart*, the *Pulse* must become *weak* and *low*, and the Fibres and Capillary Vessels of the Brain, after a long *distension* in *Watching*, rendered irreparably *relax'd*.

But, notwithstanding, *Continual* and *Immoderate Watching*, has been accounted a good *Sign*, providing that it happen at the increase and height of the Disease, and accompanied with *Signs* of *Concoction*; or, when the

Diſtemper tends to a *Criſis*. At this rate, were the Antient Phyſicians wont to clog their Predictions with Conditions, *Criſis*'s, Concoctions and *Critical* Days, which, after all, were but *Conjectural* and *uncertain*, rendring them ſecure and idle Spectators of the *Event* of the Diſtemper, to the irreparable detriment of the Patient. But we need no more to convince us of the Danger of this *Symptom*, than to obſerve that it is commonly accompanied with *Raving*, a *Delirium*, *Convulſions*, and *Anxieties*, and the like, than which there are no more fatal Signs of *Approaching Death*.

We have ſeen the Advantages of *Natural Sleep* that's brought upon the Body after *Waking*, *Labour*, and *Animal Motions*, tho' thereby the Organs are drier up, and the Animal Spirits exhausted and conſumed. But it is ſometimes alſo cauſed by the preſſure of a full Stomach upon the deſcending *Trunk* of the *Aorta*; by which, the Veſſels of the *Brain* muſt likewiſe be ſwelled, or, embouldned; or, as ſome think by the Acceſſion of new *Chyle*. However it be, 'tis not unlikely that *Immoderate Sleep* is owing only to a greater fulneſs of thoſe Veſſels, or to a Diſtention of the *Tubuli*, through which the Nervous Liquor runs into the Parts; or, is produc'd in the ſame manner as that which is *natural*, only in a more eminent Degree, and by a more powerful Cauſe.

*Sleep* is commonly aſcribed to a *Humidity* and *Coldneſs* of the *Brain*, by which the Nerves are relax'd and become flabby, and the



the Liquor of them render'd unactive and inflexible. But, in ſome Diſtempers there is a reſemblance of *Sleep* cauſed by Glutenous and viſcid Humours in the Blood, obſtructing the Chânels of the *Brain*; eſpecially, the *Glandules* in which the Animal Spirits are ſeparated from the Blood, ſo that there is no *Flux* of that Liquor into the Nerves, and conſequently no *Senſe* or *Motion*. And tho' in this Caſe there happen a *Tremor* or Concuſſion in ſome Part of the Body; yet, this can be nothing but an *unequal Flux* of the Liquid, of the Nerves and Blood into the Fibres of this or t'other *Muscle*.

What's portended by this unnatural and *Immoderate Sleep* is very obvious, if we duly conſider whether it is owing to a *Lëntor* of the Blood juſt now mentioned, or to too great humidity of the Brain, in both which Caſes, there is Hopes of Recovery. For the Exceſſive humidity that intangles the Animal Spirits, and the viſcous Humours in the Blood that obſtructs its Motion, may be happily taken off by Nature or Art. But, if *immoderate Sleep* come after long and *immoderate watching*, accompanied with a *Delirium*, an irreparable relaxation and unbinding of all the Nerves and Fibres is juſtly ſuſpected. *Hippocrates* (a) condemns that Sleep that rather *exasperates* than mitigates the Diſeaſe, but commends that which takes off a *Delirium*. (b) The ſame may be ſaid of that which mitigates *Pains*, *Inflamations*, and *Fevers*, and is well diſtinguiſh'd from a dangerous and *fatal Sleep*, by being ſound

(a) Aph.  
I. § 2.

(b) Aph.  
2. 16.

and

and undisturb'd, and if it continues some considerable time, without being interrupted by starting and frightful Dreams of the Dead, of Tombs and Sepulchres, and of their own Death, which sometimes they foretel. 'Tis likewise an ill *Sign*, when the Eye-Lids being set together, the white of the Eye appears, is Pale, Languishing and Stupid, if the Patient has not been accustomed to Sleep after that manner. And when the Sleep is short and soon broke off, the Patient awakes, is *Delirious*, and again *falls a sleep*. And if he does not sleep, but lies still without any Complaint, speaks not but when a Question is asked him, and when his *Pulse* is felt, he draws back his Hand in a trembling Condition, he will certainly *Die*.

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C H A P. VIII.

*Of Prognosticks taken from Excretions  
by Stool and Vomiting.*

THE Animal Life depends upon many and different Causes, and an Integrity of all the Parts of the Body; especially, those that are principal, as the *Head, Heart, Arteries and Veins*, and the Liquors that run in them, namely, the *Blood, Chyle, Lympha,* and *Animal Spirits*. But, because our Bodies cannot always continue in the same State, its Parts both Solid and Fluid being worn, consumed, and dissipated by continual Motion; there must be a continual Supply of Food for its Reparation, as well as proper Instruments and Vessels in which it may be prepared and made fit for that purpose.

Nature therefore hath contrived the Stomach, Intestins and Glands, in which, by a wonderful Mechanism, our Food is pounded and concocted, and its grosser Parts separated from those that are more fine and subtil, the one for the preservation of Life, and the other as useless to be thrown out by *Emunctories* ordained for that End. But when those Instruments are defective (which often happens) and the Muscular force of the Stomach, is insufficient to grind the Food and  
make

make a *Chyle* of fine Parts, that which we receive for Nourishment and Reparation of our Bodies, not being duly prepared, is ſo far from being uſeful, that it is rather hurtful to us. For, this unconcocted Food or Crudity, entering into the Maſs of Blood, renders it viſcous, tough, and of a clammy ſubſtance, unfit for Motion and Circulation, and the cauſe of moſt Diſeaſes.

Whatever therefore is uſeleſs to the Body, or inconſiſtent with the Blood, muſt be ſeparated from it, that it may be preſerv'd in a perfect State. Hence are the Endeavours of Nature, and the Contrivance of the *Inteſtins*, *Ureters*, *Salivary*, and *Cutaneous Glands*, and other *Emunctories*, appropriated indeed to their peculiar Excrements, but ſometimes common to all or moſt of them. For in a living Body, all its Veſſels are Tranſfluxible and Pervious, ſo that in time of Neceſſity, not only the thin and *Serous Humours* and Excrements, but alſo ſome that are more groſs, are tranſmitted through inſenſible Paſſages. Thus,

In a *Pleurisie*, Blood and Purulent Matter penetrate the thick Subſtance of the *Pleura* and Membrane that cloaths the *Lungs*. In the Cure of a *Dropſie*, a greater Quantity of Water is voided by Stool in one Day, than poſſibly could be, unleſs that which is contained in the *Abdomen*, ſhould pierce the *Tunics* of the *Inteſtins*. And ſometimes we ſee, that, even the *Blood* by a ſtrong impulse or obſtruction, leaves its Channels, and runs through all the Ways and Paſſages of

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*Secretion*, as into the Cutaneous Glands by Sweat of Blood, Spitting of it at the Mouth and Nose, Evacuations of it by the Reins, Womb, Duodenum, and many other Paſſages, which it finds for it ſelf, when obſtructed in the Veins. In the *Faundice*, we ſee the groſs Liquor of the Bile or Gall, when it cannot paſs by the *Cholodocus* and *Porus Biliaris*, to be thrown out with the Excrements, finds a way into the Veins and Maſs of Blood, and thence into the Cutaneous Glands, where it tinctures the Skin with a Yellow and Citron Colour, and affects the Mind and Senſes, with a Thouſand various Representations. An overflowing of *Pituite* by the Salivary Glands is reſtrained and caſt out by Sweat in the Cutaneous Pores. A *Diarrhæa* or Loofneſs can be ſtopt by tranſlating the Peccant Humour into the ways of Tranſpiration, when open'd by *Diaphoretick* Medicines, or raiſing a *Salivation*, both which, are again diverted and reſtrained by *Catharticks* and *Purgatives*.

This being conſider'd, either with reſpect to *Natural Secretions*, or the Effect of Medicines, is ſufficient to obviate the Doctrine of *Configuration* of Pores, *Attraction* or *Magnetism*. For, theſe laſt mentioned are inconſiſtent with *Philosophy*, and the Laws of *Mechaniſm*, and the firſt, namely, *Configuration* of Pores, juſtly rejected and confuted by the Learned Doctor *Pitcairn*, (a) chief- (a) Diſſert. ly, becauſe, as he has ingenuouſly obſerved, de circul. and evidently demonſtrated, that, the Ori- Sang. fices of the Veſſels, Pores of the Glandules, and Parts of the Body with reſpect to their

Figure

*Figure* and *Structure*, are different from one another, only, in *Amplitude* or *Leſſer* and *Greater Diameter*, and that they are of a *Circular Form*, when dilated, by the impulse of the Liquors that run in, or are ſeparate by them.

This is Evident in all the Organs of *Secretion*, eſpecially, in the *Conglomerated Glands* of the *Reins* and *Liver*, and the *Conglobate*, *Milliary* and *Cutaneous* ones, *theſe* ſerving to the *Secretion* of the thinner Fluid or *Serum*, and *theſe* for that of the Liquids of groſſer Parts. For, the *Orifices* of the one are different from the other only in their *Diameter*. And tho' theſe Fluids thus ſeparated from the Blood, cannot be ſaid to *Circulate* with it; Nevertheless, while they are in the Body, they have a conſtant tho' flow Motion, and the *Secretion* of them whether *in* or *Extra Animal*, is equally neceſſary with the circulating Blood for the *Preſervation* of Life. For, to *Secretions* too much *Augmented* or *Diminiſhed*, moſt *Diſtempers* owe their *Origin* and *Caules*, and not to a *Spontaneous Flux* and *Reflux*; *Benumbedneſs* and *Sluggiſhneſs* of the *Animal Spirits*.

There is yet one thing to be noted for the better underſtanding of the following *Obſervations*, namely, that as ſome *Humors* or *Liquids*, as *Urine*, *Sweat*, and the like, after they are caſt out of the Body, cannot again return into it, ſo there are others, as the *Bile* and *Phlegm*, which, tho' they be ſeparated from the Blood, and reach to the

*In-*



*Intestins*; yet, go no further, but return into the *Lacteal Veins*, ( if they be much vitiated ) and thence again into the Maſs of Blood. To this, may be owing a great many Obſtructions and *Symptoms* of Diſeaſes, and different Affections of the *Urine*, *Spittle*, *Sweat*, &c. and why the firſt is ſometimes *Bilious*, troubled and full of *Dregs* and *Sediment*, and the ſecond which is naturally *Sweet* and *thin*, ſhould be *Salt* and *Sharp*, and *purulent*, and why the laſt ſhould be *bitter*, and of an ill *ſmell*.

But this having ſome reſpect to the Secretions in *Animali* and Laboratory of the Blood, we return to conſider thoſe that are made *extra Animal*, or Excretions, by *Stool*, *Urine*, *Vomiting*, *Salivation*, *Hemorrhages*, *Sweat* and *Inſenſible Perſpiration*, &c. and what's portended by them.

As to the firſt of theſe, its *Neceſſity* is ſo obvious, that nothing can be more; all Obſtructions in the *Primæ viæ*, being always followed with unavoidable Diſtempers: for the preventing of which, *Nature* hath wiſely contriv'd, that both *Stools* and *Urine*, which are more *Heterogeneous* in their Nature, and conſiſt of more ponderous parts than other Liquids or Excrements, ſhould be ſeparated and thrown out by the largeſt Veſſels and Orifices of the Body. And as the *Gravity* of Food in the Stomach, variously preſſeth upon its Coats, by which the Courſe of the Fluids through their Veſſels are changed and affected (to which alſo may be aſcribed the Changes and Alterations that happen

happen in Digestions) ſo likewise, when there is a Congestion of ponderous *earthy* and *slimy* Matter (as all Excrements are) in the Glands and *primæ viæ*, the adjacent Parts must be pressed upon, their Functions interrupted, and a thousand Disorders brought upon the Body. But besides the largeness of the Vessels appointed for casting out the *grosser Excrements*, no less necessary were their Structure and Contrivance, their different *Diameter*, and remarkable Length (which commonly is seven times that of the Body) and various Circumvolutions, their *peristaltick* Motion, and *Contraction* of their Fibres from the *Pylorus* to the *Anus*.

The Excrements thus thrown out by *Stool*, being consider'd with respect to the State of the Body, are to be observ'd, whether they be good or bad, i. e. *crude* or *concocted*, the *Time* when they are cast out, if *copious* or not, and of what *colour*, how long they continue, and what ease the Patient has by them, and what are the *Signs* that accompany them. And here we are to take notice of the *Nisus* of *Contraction* in all the solid Parts, especially that which is evidently perceptible and demonstrative in the *Peristaltick* and *Vermicular* Motion of the *Guts* and *Sphincters*; which when they are not extended or dilated by the solid or fluid Matter contain'd in them, forthwith tend to *Contraction*, as we see happens after going to *Stool*, *Child-bearing*, and when the *Stomach* is empty, the *Surfaces* of the *Intestines*, *Womb* and *Stomach*, being brought nearer to one another.

But,



But, when the Fibres of the Intestins come to be *relax'd* and *flaggy*, and their *Contraction* is less than usual, or an unusual quantity of solid or liquid Substance is contain'd in their Cavity, or whatever be the Alterations, Changes and Indispositions that may be brought upon them, the Effects of it for most part appear in the Excrements.

Hence are the *thin* and *frequent Stools* mix'd with *Gall*, Slime and other Humors in a *Diarrhæa*, voiding of the Meat we have eat or swallow'd, very little chang'd and alter'd, sometimes having a mixture of thin Excrements, and sometimes having none at all, in a *Lienteria*. In the *Passio Celiaca*, we void all those Excrements in an unusual Consistence mix'd with *Chyle*; and in a *Dysenteria* with *Blood*. All which different *Appearances* being owing to a greater or more frequent *Contraction* of the Guts, *Relaxation* of their Fibres, and an unusual quantity of liquid Substance contain'd in the Cavities of the Intestins. But,

When the *Intestins* are sound and intire, the *Excrements*, as described by *Hippocrates*, are *soft* and *coherent*, of a *reddish Colour*, and *tollerable Smell*, thrown out as at the usual time in a State of Health, and in a quantity proportioned to the Food and Diet. But those that are *hard* and *black* denote a *Heat* and *Inflammation* in the Intestins, and a Consumption of the *Lymph*; as those that are too *liquid*, signify a *Plethora* of Phlegm, crude Humors, and a Coldness in the Constitution. *Fat* and *viscous Stools* denote a melting or colli-

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quation of the fat and ſolid Parts, than which there is no Sign more dangerous, if they be accompany'd with a ſtinking Smell, a black Colour, and other like Circumſtances, in ſharp and acute Diſtempers, unleſs this appearance be owing to fat and glutenous Food and Nouriſhment, or thick Phlegm. Again,

The different Colours of Excrements proceed from the greater or leſſer quantity of *Bile* mix'd with them. This Liquor indeed, whether we conſider it in its *ſaline*, ſulphureous and volatile Parts, or with reſpect to its Origine, Progreſs, and Motion into the Inteſtins, ſeems chiefly to be deſign'd for ſeparating and refining the *Chyle*. So that if the *Chyle* ſhould not deſcend into the Inteſtins, there had been no uſe for the *Bile*. But when there is too great a plenty of this *Gall* in the Inteſtins, and at the ſame time little or no *Chyle*, the Stomach and Inteſtins muſt be variously affected with *Nauſeousneſs*, *Spitting*, *Vertigo's*, *Anxieties*, and the *Head* and *Breaſt*, with *Pains* and *Uneaſineſs*. Moreover, a more than uſual quantity of *Bile* changes the Excrements to a *greeniſh Colour*, which ſignifies a redundancy of acid Humors, threatening Death to the Patient, or a lengthening of his Diſeaſe, eſpecially if this Colour, with a *loathſome Smell*, appear at the beginning of his Diſtemper. But no Danger is preſaged by it to *ſuckling Children*, whoſe Excrements are often greeniſh colour'd by reaſon of the Acidity and Corruption of their Milk. *White Stools* are owing to Crudities and Indigeſtion, or an Obſtruction of the *Bilious Tracts*, ſo that



that that Liquor cannot paſs into the *Duodenum* (as it happens to thoſe affected with the *Faundice*, whoſe Excrements are always *whitiſh Colour'd*) but is transferr'd into the Veins and Cuticular Glands. Such Stools muſt be dangerous in all acute Diſtempers, eſpecially in the Diſorders of the Head; and of the ſame nature are thoſe that are *yellow, ruſty, livid, black, party-colour'd*, and of a *high Smell*, which for moſt part denote Death or Diſeaſes of a long ſtanding (a).

(a) Aph.

23. § 4.

*Froathy Stools* in a *Loofeneſs*, according to *Hipp.* (b) proceed from *Pituite* or *Phlegm* in the Head; but more probably from a Mixture of *Bile* and *Pituite* iſſuing from the Tracts of the *Liver* and *Pancreas*, or the Glandules of the *Stomach* and *Inteſtins*. However it be, ſuch Stools in Fevers are no good Sign, but yet worſe when they are chang'd into thoſe that are *ſincere*, i.e. conſiſting of one Humour and Colour, without any mixture of *Phlegm* or *Serum*.

(b) Aph.

30. § 7.

'Tis an *ominous* Sign in all Acute Diſeaſes, when Food and Eatables are voided without being alter'd and digeſted; and every body knows the danger of *immoderate Loofeneſs*, becauſe it enervates the Strength, and cauſeth *Fainting*, *Conuulſions* and *Hiccups* (c), by draining and emptying the *Viſcera* and *Inteſtins*, and contracting the Nerves. And on the other hand, *Stools* of a ſmall quantity, and ſuddenly check'd or ſtopt, are not only unprofitable, but pernicious, when the peccant Humor, that was caſt into the *Inteſtins*, recoils upon the Blood; upon which account we find it always dangerous to give

(c) Aph.

4. § 5.

a ſudden Check by aſtringent Medicines to *Diarrhæas* or *Dysenteries*.

A *Loofeneſs* is dangerous, when it comes upon the Invaſion of any acute Diſtemper, and continues with it, eſpecially in *Pleurifies* and Diſtempers of the *Lungs* (a); but it contributes to the Cure of an *Ophthalmia*, or Inflammation of the Eyes (b), and all Diſeaſes of the Head. If it ariſes, as frequently it doth, from *Grief* and *Paſſions* of the *Mind*, it is in a manner incurable, if the Cauſe of the Grief remains: For this ſort of *Loofeneſs* uſes to be follow'd by an *Erratick Fever*, till the Patient waſtes and pines away to Death. And as it is very pernicious in the Diſeaſes of the *Breaſt*, ſo likewiſe 'tis offenſive to Women in Childbed, and Children, ſeiz'd with malignant Fevers. It is always inflam'd by eating of Meat. But if it inſues upon a *Delirium*, eſpecially when the Diſeaſe tends towards a Concoction, it takes off the Diſtemper, the Diſorder of the Spirits, by which the various *Species* were repreſented to the *Mind*, being check'd and implicated with the Humors. And nothing contributes more to the cure of *Palsies*, that are owing to phlegmatick or watery Humors, than a ſupervening *Diarrhæa* or *Loofeneſs*, that's moderate and tollerable: For ſuch muſt diminiſh the too great Moiſture and Humidity of the Fibres and Nerves by which they are relax'd, and their Liquor embarreſſed and intangled, but an immoderate *Loofeneſs* diſſolves and conſumes it. For in all *Diarrhæas* there is a vaſt Expence of the uſeful and  
neceſſary

(a) Aph.

6. § 6.

(b) Aph.

17. ibid.



necessary Humors, that are caſt forth with the bad, and thus obſtructs the Nouriſhment of the Body, becauſe the Food is not converted into *Chyle* for its reparation, but into liquid Excrements, which of all others are the moſt ponderous and weakening.

Every one knows the fatality of a long continued *Dysentery*, concerning which it may be further obſerv'd with a late Author, that if one in this Diſtemper is ſeized with an Inflammation of the *Tongue*, and a *Difficulty* of *Swallowing*, there is no hopes left; but if he break wind downwards after its abſence for ſome time, 'tis a *Sign* of Recovery. But in a deſperate *Iliack Fit*, if a great deal of Wind breaks downward with a Stink, 'tis a Harbinger of Death.

The *Atra Bilis* frequently mentioned by *Hippocrates* (a), and which he condemns as a (a) Aph. mortal *Sign*, being caſt out by Vomiting or 22, 23, 24, Stool in the beginning of Diſeaſes, ſuch as § 4. *Dysenterys*, and in one word, in whatever Diſtemper, ſeems to have been an Humor peculiar to *Greece*. And tho' the Excrements in more Northern Regions, in ſome Diſtempers are ſometimes *yellow*, *livid*, and of a *ruſty Colour*, of which above; yet, that theſe Colours are owing to a certain quantity of *Bile* mixed with them, ſeems to be very plain: For the more of *Bile* that's mix'd with Water and Phlegm, the Colour is the more *yellow*, and the leſs there is of wateriſh Phlegm, 'tis the higher colour'd, and tending to Blackneſs; and when the Blood is deſtitute of its due proportion of *Serum*, blackiſh

and deep or pale colour'd *Bile* may be generated and mix'd with the Excrements. Besides, that the Colour of Excrements may proceed from Medicines, Food, or crude Humors a long time lodg'd in the Intestins.

Upon this score, in forming just *Prognosticks* from the *Stools* of the *Sick*, a due regard must always be had to the *Food* and *Medicines* that have been administred, because both the one and the other very often change and alter the Substance, Quantity and Quality of the Excrements, imposing upon the unwary, who take those that are natural to be quite otherwise. Thus we see, that from eating of *Onions* or *Garlick*, their peculiar and nauseous Smell is very perceptible when vomited up. Potions of *Senna* yield *mucous Stools*, Medicines of *Rhubarb*, those that are *yellow*, *Pulp* of *Cassia*, and Preparations of *Mars*, or Poulder of *Myrtle-berries*, dy the *Stools* of a *black Colour*. And lastly, whatever the Distemper be, especially if it be a *Feverish* one, we must carefully consider, whether this Evacuation by *Stool* be *Critical* or *Symptomatical*; for according as 'tis this or that, so is our *Hope* and *Fear*. But after all, we are not to think that all *Critical* Evacuations are follow'd with Recovery, or are Salutary, seeing all *Crisis*'s are not such; and therefore the Doctrine and Precepts concerning them must be the more cautiously apply'd: For it hath been often observ'd, that some, after *Critical* Evacuations, have expired in a little time, and others have recover'd, that have been brought to the last  
Breath,



Breath, by *Symptomatical* Excretions and Evacuations; of which, in the next place is

VOMITING, which lies under the ſame Rules with *Excrements* by *Stool*, and not only contributes to the diſcovery of the reſpective Nature and Cauſes of Diſtempers and Indispoſitions, but alſo to indicate their *Event*. But *Vomiting* is not here conſider'd as *Periodical*, happening at certain times, as once in the Month, or once a Week, or every day, as I have obſerv'd in ſome, without any uneaſineſs and detriment to the Patient; nor as is it *Artificial*, and *procur'd* by Medicines, or any external Cauſe, as Stroaks or Falls, contagious or venemous *Air*, noyſome Smells; violent Exerciſes, going to Sea, Surfeits and hyſterick Fits, and the like; but as it is produc'd by ſome internal Cauſe, *Symptomatical* or *Critical*. In order to which, 'twill be requiſite we ſhould obſerve, that

Whenſoever any unnatural *Juices* or *Humors* are generated and congeſted in the *Stomach*, or ſtrain'd into it from the *Glands*, we have not always a *Senſation* of it, like that of *Hunger*, unleſs they be of that nature to affect us as *this* doth; and therefore as the *Humors* are *viscous*, *acid*, and *corroding*, or ſo powerful to inſinuate themſelves into the Membranes and Coats of the *Stomach*, ſuch is the *Senſation* excited by them, and is ſometimes only a ſlight twitching, but then more gnawing and cutting, &c. cauſing *Pains*, *Heart-burning* and *Hiccups*. Now for the production of theſe Effects, no Hu-

mor it more powerful than that of the *Bile*, whole Parts being remarkably *Salt*, *Sulphureous*, *Acid*, and *Volatile*, are easily derived from the *Duodenum* into the Cavity of the Stomach, and its most Volatile Particles diffused upon the *Surface* of the *Oesophagus*, first occasioning an Aversion to Food, and then a *Contraction* of the Stomach, or a sudden *Convulsion* of it, by which whatever is contained in it, is thrown out by the Mouth in *vomiting* or *wreaching* only, if the Stomach be empty. But, as *Vomiting* is thus caused by plenty of unnatural *Humors*, especially that of *Bile* congested in the *Stomach*; so likewise by an embowldning of the Arteries and other Vessels pressing upon its Nerves, or by a greater than usual quantity of *Spirits* derived into the Muscles of the Stomach, which necessarily must cause a sudden *Convulsion* and *Contraction* of it. Thus it happens in a long *Paroxysm* of *Vertigo's*, exquisite Pains of *Nephretick Collicks*, and other Distempers.

I propose not to my self to account for *Vomiting* procur'd by *Emeticks*, or to determine, whether in this case, it be owing only to an *Irritation* or *Stimulus* of the Coats of the Stomach, or to an *Attraction* (so to speak) of *Humors* into it from the adjacent Parts. But 'tis certain, that the *Effects* of *Vomiting*, whether *natural* or *procured*, are very extensive towards the preventing of many Distempers: For, besides the freeing the *Stomach* from any oppressing Matter, which 'tis very apt to congest, and which, whilst lying there, perverts



verts Digestion, either by hindering the Eruption of, or allaying and depraving the Liquors that *ouze* into it from the glandulous Coat for promoting Digestion; the *Irritation* and *Concussion* extends not only to the Glandules and Nerves of the Stomach, but by consent of the whole Nervous System, to those all the Body over, whereby they are contracted to the discharging of whatever loads, or is disagreeable to them.

Thus the Body is discharg'd of its Impurity by a nearer and more expeditious way of Evacuation, than by the various and slow Turnings of the *Intestins*. And nothing is so conducive to render the viscous Humors impacted in the *Viscera*, fluxible, to take off Obstructions, and the most hidden and latent Causes of Diseases. For, by such a violent *Concussion* of all the Parts of the Body, the *Intestines* are stimulated to discharge their Impurity by *Stool*; the Liver and *Pancreas* by the *Cholodocus* and *Porus Biliaris*; and the *Spleen* probably dischargeth its Excrement into the Stomach by ways yet unknown to us; the *Reins* their *Serum* by the *Ureters*; the *Lungs* their *Mucus* by the *Windpipe*; the *Brain*, *Palate*, *Nose* and *Eyes*, throw forth their *Pituite* and *Salt Serum*, and the whole Body by *Sweat* and *insensible Perspiration*.

But notwithstanding all these *Advantages* of *Vomiting*, whether excited by Art or Nature, in some cases hereafter to be mentioned, nothing is more dangerous, or attended with more fatal *Events*. By *Art*, when *provok'd* in those that are very young, or whose Weakness

Weakness cannot bear such a Tumult and universal Evacuation. Neither is it safe in Spitting of Blood, Consumptions, Hæmorrhages at Nose, or when there is any internal Apertion of the Veins, and such like. But now of *Spontaneous Vomiting*.

When *this* comes upon a long continued *Looseness*, the Disease goes off in a little time (a), but 'tis quite otherwise, when it comes upon a *Dysentery*; and no less unlucky is a *bilious Vomiting* in the beginning of that Distemper. Matter of a *rusty, livid, black and leek-colour*, vomited up with a *stinking Smell*, are said to be mortal, and *Hippocrates* in his *Epidemics* gives us many Instances of it; but after all, they seem to be only some particular Cases, accompany'd with other grievous *Symptoms*: For we see such colour'd Matter often vomited up without any danger, especially in *Hysterick Fits*, which upon this account have been taken for a *bilious Colick*, or the *Iliack Passion*; the Matter vomited up being of the colour of Herbs. And in *Sea-sickness*, such colour'd Matter has been cast up from the Stomachs of those in perfect Health. The like is commonly observ'd in the Excrements of Children in *Convulsive Fits*, when voided either upward or downward. The *black Colour* in *Vomiting* is indeed a most *dangerous Sign*, being caused by a Relaxation of the *Viscera*, and as 'twere a *Palsy* of the whole Body, and threatens approaching Death. But if this happen to those that are young, and to Old Men, whose solid Parts are naturally loose

and

(a) Aph.  
15. § 6.



and flaggy, the greater is the hope of Recovery, and of eſcaping from the threaten'd Danger.

The *violent Vomiting* in the *Iliack Paſſion* muſt needs be mortal, becauſe it ariſes from the inverted and prepoſterous Motion of the *Inteſtins*, and their *Fibres*, which ought to be contracted from the ſuperior towards the inferior, but in this Diſtemper are contracted to the ſuperior: So that whatever is contained in them, is vomited up at the *Mouth*, contrary to the wonderful Contrivance of Nature, which hath form'd the Folds and Circumvolutions of the Guts in the moſt fit and conducive Order to carry the *Fæces* down to the *Anus*. Here it may be obſerv'd, that ſometimes in the *Cholera Morbus*, when *Vomiting* is unſeaſonably ſtop't, either by *Opiats* or *aſtringent Medicines*, a worſe Train of Symptoms follow: For the ſharp and corrupted Humors being repelled, exert their Fury and Force upon the Blood, or are mixed with it; and thus ends in a *Fever*, which is equally dangerous with the Diſtemper.

*Vomiting* of *Blood* is always dreaded, and (a) Aph. attended with Danger (a), eſpecially when it <sup>25.</sup> § 4. comes from the *Lungs*, or an Apertion or Corroſion of the *Sanguiferous Veſſels*; yet this *Symptom* hath been ſometimes *critical*, and beneficial to the Patient. Thus Women have ſometimes *vomited Blood* in the *Suppreſſion* of the *Menſes*, in which caſe it is not to be ſuddenly ſtop'd, unleſs the quantity vomited up be greater than is uſual in its natural Courſe. But more of this when we come to ſpeak of *Spitting of Blood*. C H A P.

## C H A P. IX.

Of Prognosticks taken from Salivation,  
and Spitting of Blood.

**W**Hilst the Chyle is only in the *Stomach* and *Intestins*, 'tis said to be *extra Animal*, and when it is receiv'd into the *Lacteal Vessels*; its State and Condition is but little different from what it was in the other, except that 'tis a little more refin'd in the *Glands* of the *Mesentery*, for, as yet it is *Salt* and of a *whitish Colour*. But, by the Accession of the *Lymph*, 'tis rendred thinner and more Fluxible to pass into the *Subclavian Vein*. And it's last State is in the *Veins* and *Arteries*, where after some Hours, it looses its Colour, and is purged from the greater Part of its *Salt*.

But this deluting of the Chyle, seems not to be the only use of the *Lymph*; For some of its Vessels discharge this Liquor, not only into the *Thoracick Chanel*, but also immediately into the *Veins*. Some come from the *Viscera*, and the Glands of both Sorts, namely, the *conglobated* and *conglomerated* ones, from the first, the *Lymph* is carried into the *Veins*, and from the last into particular Channels and Cavities, as into the *Eyes*, the *Mouth* and *Duodenum*, &c. And tho' their Number be infinite, and in every Part of the Body,



Body, and their Orifices like to other Channels, *i. e.* of a Circular Form. Yet, those that are most remarkable, are the *Salivary Vessels*, which come from the *Parotides*, and *Maxillary Glands*, in which, the *Lymph* or *Spittle* is filtrated, before 'tis received into those Vessels, which terminate in the *Mouth*, under the Point of the *Tongue* and *Lower Grinders*, *Palate* and *Oesophagus*.

And as the *Lymph* thus serves for a Conveyance to the *Chyle*, until it enter the *Veins*, and there also delutes the *Blood*; so is it also separated from the *Blood*, that there may be a continual Stock of it for proper Ends and Purposes. And if we consider the vast Number of *Salivary Glands*, and the great quantity of *Lymph* or *Spittle* that's continually emptied into the *Stomach* and *Mouth* (not to mention its *Principles*) we must be convinc'd, that Nature never design'd this *Liquor* but for the noblest Uses. But, on the other hand, when it comes to be superfluous, *i. e.* when there is more of it than is necessary to delute the *Blood*, &c. or, when 'tis obstructed and loaded with *Heterogeneous* parts, we are not to wonder it should be the cause of so many and different Distempers as are ascrib'd to it. For,

Nature hath design'd, that this as all the other *Liquors* and *Juices* of the Body should be of a *Determinate Quantity*, and the Superfluous part to be cast out *quâ datâ portâ* by *Stool*, *Urine*, *Sweat*, insensible *Perpiration* and *Salivation*. But not being carryed off by either of those ways, it swells and  
em-

embouldens its Veſſels, occaſioning *Rheumatisms* and *Gout*, and ſometimes to that bigness, that at laſt they muſt break and terminate in *Dropsies*. Or, it takes place in the finer Veſſels of the *Brain*, fills and ſtuffs its Glandules, relaxeth its Fibres, intangleth the ſubtil active Parts, or thoſe called *Spirits*, makes them ſluggiſh and unactive, or obſtructs the generating and ſeparation of them from the Blood, and thus cauſeth *Lethargies*. Or it diſtills into the Pulmonary Veſſels where it thickens, becomes viſcid and hard, and productive of a Thouſand Diſorders.

'Twere endleſs to recite and account for all the Effects of a *vitiated Lymph*, and alien to my Purpoſe to adduce the Cauſes to which it is aſcribed, ſuch as are a Coldneſs in the Blood and Conſtitution, an obſtructed Perſpiration, cold and watry Meats and Drink, cold Weather and thick Air, exceſſive drinking of Spirituous Liquors, want of Exerciſe and Exceſſive Venery, and the like. We are therefore to *view* it as it falls under the Denomination of *Saliva* or *Spittle*, and conſider it with reſpect to its thinneſs, thickneſs and viſcidity. And as it is *equal* or *round*, *frothy*, *bloody* and *putrified*, as it is *white*, *pale*, *yellow*, *reddiſh*, *livid*, *black*, and of a *mixed Colour*, as its *Smell* and *Taſt* is *ſtinking* or *inſipid*, *sweet*, *bitter*, or *acid*, and caſt out with *eaſe* or *difficulty*, and what's *imported* and *preſaged* by it under one or more of theſe Circumſtances.



First then, we never have a bad Opinion of *Spittle*, that's *white*, *light* and *equal*, and when it is neither too *thick* nor too *thin*, but easily hawk'd up without *Pain* and a *violent Cough*; nor of that which appears upon the first Invasion of Diseases of the *Breast* and *Lungs*, (a) especially in *Pleurisies*, tho' it (a) Aph. be *redish* by reason of a mixture of Blood <sup>12. S 1.</sup> and *Pituite*; For such *Spittle* is cast up in that Distemper to the Advantage of the Patient, if it Commence before the fourth Day, but after that time his Strength is often exhausted, and the *Spittle* comes to be so much thickned, that it cannot be easily brought up, and thus inflames the Disease; so that not only in this Distemper, but also in Inflammations of the *Lungs*, 'tis a dangerous Sign when the *Spittle* is *white*, and altogether of *Phlegm*, like that of those in Health, for it tells us that the Peccant Humour is yet lodg'd in the *Breast*.

Again, as long as Feverish Persons *spit*, they are out of Danger in continual, as well as intermitting Fevers. So it is with those that are *Pibisical*; for they live as long as they can *Spit*, and die when it is suppress'd, the *Salivation* being follow'd with *Strangling* and *Snorting* in the *Throat*, occasioned by the viscidty of the impacted Matter in the *Lungs*, so that upon this account, or want of Strength it cannot be hawked up and expectorated, but in a little time must end in *Suffocation* and *Death*. The like Symptom often happens in *Asthmatical* Paroxysms but with less danger.

When

When *thin Pituite* that ſhould have been carried off by inſenſible Perſpiration, or other Ways of Excretion, falls upon the *Pulmonary Veſſels*, 'tis thrown ont with ſuch Violence and Force, that it often breaks the little Veins, or weakens and relaxeth the Channels of the Glands; and if this Humour cannot be caſt out this way, it becomes thick and corrupted, and then thrown out like *Pus*, the *Glands* being ulcerated, and the *Conſumption* confirmed. And if in *Coughing*, little things like Hail or Grains are brought up, and theſe ſtink extremly when ſqueez'd with ones Fingers, a *Latent Vomica* or *Impoſthume* in the *Breaſt* is always ſuſpected. Some, indeed, in this Condition have lived ſeveral Years, and at laſt have been ſuddenly cut off by the Rupture of the *Vomica*. For, after ſuppuration, the *Purulent Matter* breaks out into the *Wind-pipe*, and choaks the Patient. But the further the *Vomica* is diſtant from the Center of the *Lungs*, the leſs danger there is of *Suffocation*.

There is no more certain Sign of Recovery in *Lethargick* Diſtempers, than a Copious *Salivation*, this indiſpoſition being owing to cold, watery and groſs Humours congeſted in the *Brain*. For, when the *Salivation* appears, it tells us that the *mucuous Matter* is rendred fluxible with the Blood, and brought by the Arteries which are diſtributed among the *Salivary Glands*, and thoſe of the *Noſe*, to be thence ſeparated and thrown out.



*Yellow Spittle* (which is likeſt to that which is *white*) having little or no mixture of Blood, is a Sign that not only the *Pulmonary Veſſels* are not much vitiated, or the Blood Veſſels corroded, but alſo that there is either an approaching Conversion of the matter into *Pus* without any afflux of Blood, or that the Phlegmatick Humour comes to be caſt up. Therefore, if ſuch *Spittle* happen at the Beginning of the Diſtemper accompanied with the forementioned Circumſtances, there is hope of Recovery. But if latter, we may be aſſured, that there is much Morbiſick and unconcocted Matter congeſted in the *Pulmonary Veſſels*, and that thoſe finer Membranes are cut and corroded, than which there is no Sign more dangerous.

*Green, Livid, and ruſty Colour'd Spittle* with a noiſom ſmell, ſignifies an extream Heat and Inflammation of the *Viſcera*, threatening Danger to the Patient. But no ſuch thing is portended by *foaming Spittle*, when it is cauſed by Anger or violent Exerciſe, nor by that which is commonly ſeen in the Mouths of thoſe in *Convulſive Fits*: But when it happens in *Quinſies*, and to thoſe in an *Apoplexy*, there is no hope of recovery. For *Foam* conſiſting of Air, and a mixture of Liquid viſcous Matter, ſeparated into the Mouth by the Orifices of the Salivary Channels, or ſmaller Glandules of the Lungs and Wind-pipe, tells us, that there is not only an unuſual Quantity of this Viſcous Liquid in all the Veſſels of the Body, but alſo, that

the *Oeſophagus* is almoſt entirely ſhut ( having only a ſmall Cleft in the *Larynx* ) and that the Tone of the *Fibres* is diſſolv'd and irreparably *relaxed*.

Laſtly, *Salivation* in a State of Health, may be conſider'd, as it is *natural* or *forc'd*, and procur'd by *Medicines* or other means. That which is *natural*, is more or leſs dangerous according to ones natural State and Conſtitution. Some being of a **Plethorick** and blouted habit of Body, puſt and blown up with Phlegmatick and watery Humours, are much benefited by *Spitting*, and ſuch like Evacuations. For, of all the Humours in Humane Body, the *Lymph* by reaſon of its ſlow Motion and unactive Parts, is moſt apt to be *Coagulated* and *Congealed*, and then with much Difficulty diſſolv'd. And tho' thoſe in this State ſeem to be in Health, yet they are nothing leſs, being ſluggiſh and unactive, and unfit for Animal Motions and Exerciſe. The *Colour* of their *Face* is Natural and freſh, they Spit little and have no Appetite, they Sleep much and ſometimes are Feveriſh; and when all remedies prove ineffectual, they are at laſt ſuffocated and drowned in their own Humours, and by Degrees ſtep into the other World.

But 'tis quite otherways with thoſe who are of a Lean and Thin Habit of Body, their *Lymphatick Veſſels* being already ſhrunk, withered and dry, either by ſenſible or inſenſible Evacuations or Perſpiration; are rendred much more ſo, by profuſe *Spitting*, whether *natural*, or *forc'd* and procur'd by exceſſive  
Smoaking



Smoking or otherways, whereby the Stomach is deprived of this *Menſtruum* and natural *Balsam* that ſerves to carry off its Impurities, moiſten and delute its Coats, and keep its Fibres in a due *Tone* and *Contraction*. And therefore it cannot be ſtrange, that, thoſe who for a *ſmoaky Pleaſure*, are ſo profuſe of this *Liquor*, ( for it is not always an unprofitable Excrement ) have little or no *Appetite*, are *weak* and *languiſhing*, and for moſt part *Coſtive* and *Pale Coloured*. But all this is to be underſtood with reſpect to thoſe in Health, and whoſe Habit of Body is *Thin* and *Lean*. For, the *Spittle* of thoſe that are *Scorbutick*, or affected with *Venereal* Indispoſitions, is *morbifick*, and therefore to be thrown out, that the *Venom* of that Diſtemper may be taken off. But here we are to obſerve, that, *Salivation* procur'd by *Mercurial Medicines*, eſpecially in thoſe that are *Lean*, and continues long, is, often followed with a *Heſtick* and *Conſumptive* Diſpoſition.

As to *Spitting* of *Blood*, than which there is no *Appearance* more frightful, it may deſerve to be conſider'd, that, tho' this *Liquor* be confin'd and bounded by the ſtrong-eſt *Tubes* in Humane Body, as was neceſſary eſpecially in thoſe Parts neareſt the *Heart*, not only for promoting its *Circulation*, but alſo for reſiſting its impulſive and violent Motion : Yet, who knows not how often and how many and different ways theſe Channels are broken, corroded and divided, or otherways vitiated and rendred defective, ſometimes by a *Plethora* of *Blood*, a *Suppreſſion*

of uſual Evacuations, violent Motions of the Body, Intenſe Heat, and Paſſion of Anger, loud hollowing, violent Coughing, Worms, and ſharp Humours. And alſo when the Blood is too thin and rarified, for then it is eaſily filtrated, and penetrates the Pores of its *Tubes*; eſpecially, when their Fibres are flabby and relax'd. So that by whatever means, or *whereſoever* the Blood Veſſels are open'd, thence it will flow as ſometimes from the *Hæmorrhoid Veins*, and which concerns our preſent purpoſe, ſometimes from the *Lungs, Breſt and Throat*, from the *Stomach and Inteſtins*, and from the *Noſe and Gums* into the Cavity of the Mouth, whence 'tis caſt out, and therefore called *Spitting of Blood*.

But, it being not eaſily known, when the Blood comes into the Mouth, and is caſt out thence, whether it proceeds only from the *Gums and Noſe*, and other Parts of the *Head*, or from the *Lungs, Stomach, and Breſt*: 'Tis therefore requiſite we further inquire, whether there be any Concomitant *Appearances*, and diſtinguiſhing *Signs*, that may bring us to a juſt view of this Affair. For, theſe being found, 'twill be no hard matter to know what's *portended* by this *Symptom of Spitting Blood*.

In the firſt place then, 'tis obſerved, whether or not, *Spitting of Blood* be accompanied with a *Cough*, and what's the manner of it. For, when the Blood comes from the *Stomach* by the *Oeſophagus*, 'tis ſaid to be al-

ways



ways vomited up, providing there be a considerable Quantity of it, and that which comes from the *Throat* only, to be *hawked* up easily, and when from the *Lungs* with greater *Violence*. But, nevertheless, the *Blood* that comes from the *Oesophagus* and *Throat*, is sometimes so viscid, that it cannot be *hawk'd* up without great *Violence* and *Coughing*; whereas, that which comes from the *Lungs* by the *Wind pipe*, is sometimes brought up more *easily*, and with little or no *Coughing*; especially, when the *Blood* is not very viscid, and of a small Quantity; so that it cannot be certainly affirmed, that in *Spitting of Blood*, a gentle *Cough* is an Argument of its coming from the *Throat* or *Wind-pipe*, and when more *violent*, from the *Lungs*. But whatever be the manner of the *Cough*, if there be no *Sign* of Disorder in the *Breast* and *Lungs*, or Antecedent Cause by which they may be affected, or suspected to be so, and the Patient is only sensible of a slight *tickling* in his *Throat*, but his Face is ruddy and flame-coloured, and complains of *Pains* in his *Head*, and the *Blood* is cast forth without any *Froath*, but afterward is *froathy*; 'tis certain, that the *Blood* comes only from the *Head*, and thence derived into the *Throat*.

On the other hand, when the *Blood* is *Froathy*, and brought up with *Coughing*, we are not to doubt that it comes from the *Lungs*, (a) especially, if it is not viscid and (a) Aph. glutenous, and comes from their lower Parts. <sup>13. § 5.</sup> For, in coming from thence into the *Mouth*,

its Parts are rarified and mixed with *Air*, and thus becomes, *froathy*, tho' it be no leſs ſuch when it is alſo *viſcid*. Now, that *froathineſs* in the *Blood*, tells us that it comes from the *Lungs*, and not from the *Breſt*, is yet more plain, in being brought up without any *Senſe* of *Pain*. For, 'tis more likely that a Rupture or *Eroſion* of the *Blood Veſſels* in the *Breſt* ſhould be more painful than when it happens in the *Lungs*, whoſe tender Veſſels are opened and broke, without the leaſt *Senſe* of *Pain*, as well as in *Hæmorrhages* at Noſe and Gums. But, that *Blood* coming from the *Lungs*, ſhould be of a *blackiſh Colour*, as ſome will have it, I think is hardly probable; chiefly, becauſe in paſſing through the *Lungs* and *Wind-pipe*, it is mix'd with ſome Particles of *Air*, by which it is, as was juſt now obſerved, not only rendred *froathy*, but alſo more or leſs bright in its *Colour*, according to its thinneſs and viſciduity.

But to put this Matter beyond all doubt, we are always to conſider what happen'd to the Patient before he was taken with *Spitting Blood*; eſpecially if he be affected with ſharp and pricking *Pains* in his *Breſt*. For in this Caſe, the *Blood* that's brought up, proceeds from the *Breſt* or ſome *Tumor* in it, otherways it muſt come immediately from the *Lungs*, or is transferred into them from ſome other affected Part, either by Fermentation or Plethory, Fervency and Rarefaction of the *Blood* and Humours, by which



which the tender Veſſels of the *Lungs* are broken and corroded, and thereupon a *Spitting* of *Blood* muſt iſſue.

Now it ſeems to be plain what's portended and preſaged by it, if by the forementioned *Signs*, we rightly diſtinguiſh between that which is *Accidental* and *Habitual*. By the *ſiſt*, I underſtand that which meerly proceeds from ſome Accident, as from *Hollowing* or ſpeaking too loud, violent Exercise, ſuppreſſion of Hæmorrhages and uſual Evacuations, intense Heat, and Paſſion of Anger, a *Plethora* of Blood, and violent Coughing, and ſuch like; which are taken off by the adminiſtration of proper Medicines, and ſeldom or never return again. But it is far otherwiſe, when the *Spitting* of *Blood* comes to be *Habitual*, and of a long continuance, or returns at certain *Intervals*; For this denotes a Fervency and Acrimony in the Blood, by which the tender Veſſels of the *Lungs*, being not able to reſiſt its quick and impulſive Motion, are wont one time or other to be opened or corroded, and then there muſt be a great Expence of that *Liquor*, which for moſt part does not ſtop, till the Feveriſh *Orgaſm*, and inteſtin Motion of the Blood, is taken off by Art, or ceases of its own accord.

This is that fatal *Spitting* of *Blood*, which is wont very often, to terminate in an incurable and mortal *Conſumption*. For, 'tis followed with *Spittle* of Purulent Matter, and when *this* is ſuppreſſed, the Patient

(a) Aph. Dies. (a) Because the extravasated and stagnated *Blood* in the *Lungs*, is not only converted into purulent Matter, by which their *Texture* is dissolved, and their Parts corrupted, but also the purulent Matter comes at last to be mixed with the *Blood*, and thus infects the whole Body. And, when the *Spittle* is suppressed and *stopt*, or detained in the *Lungs*, the Patient must die in a little time. Because the Blood Vessels must thereupon be obstructed, after which there is no *Circulation* or *Life*.

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C H A P. X.

*Of Prognosticks taken from Sweat, Insensible Perspiration, Hæmorrhages, and Blood taken from the Veins.*

**S**WEAT is a thin sort of *Urine*, and differs from it, only in the Proportion of the *Contents*, and fineness of its Parts, disingag'd from the Mass of Blood; and thrown out upon the Cutaneous Glands and Pores of the Skin, by the impulsive Motion of the Circulating Blood. When it comes not under the Cognisances of the Senses, and ariseth only in imperceptible *Effluvia*, it is called *insensible Perspiration* or Evaporation. Of the first, namely, that which is called *Sweat*, some is gross and viscous, and sometimes it consists of more fine Parts. It is of different Colours, a thing not commonly adverted to or observ'd, some Sweat being Yellow, and of a greenish Colour, &c. We are not to wonder there should be such variety of Colours in Sweat, nor that it should be Salt, which as was observ'd, is inseparable to *Urine*, especially, when loaded with much *Sediment*: And 'tis well known, that *Sweat* hath its *Savour* and *Smell*.

It is likewise *Hot*, *Cold* and *Lukewarm*, and happens in all the *Periods* of Diseases. Sometimes it continues a long time, and some-

sometimes 'tis ſoon Interrupted. Some Sweat is well *coſted* and *refin'd*, and another ſort is Viſcous and Crude. Some is *Critical*, and ſome Sweats are *Symptomatical* and *Periodical*, or *Partial*, as in intermitting Fevers.

In a State of Health, this *Serum* or *Ichor*, is moſt copious in thoſe of high feeding, and of a Plethorick Conſtitution and brisk Circulation, their *Pores* being commonly more open and pervous, than in others that are not ſo; but when theſe are ſhut up and contracted, the Humors that were wont to be caſt out by *Sweat*, muſt be lodged in the Blood and Capillary Veſſels, cauſing frequent Diſorders and Diſtempers, unleſs they be thrown off by ſome other *Emundatory*.

Were we to inquire how, and after what manner this *Serum* is driven into the Cutaneous Glands, and thence into the *Pores* of the *Skin*, the moſt probable reaſon that could be aduc'd, muſt be a ſtraitning or preſſure upon thoſe Glands, by the *appulſe* of fermented Blood; or, a rarefaction both of the Blood and Humours, by which the *Saline* and *aqueous* Parts of the laſt, are diſſolv'd and ſeparated one from another, and rendered *fluxible*, to be ſtrain'd into the Sudoriferous Glands, and thence deriv'd into the *Pores* of the *Skin*, and form'd into *Sweat*. And here we are to obſerve, that, a fervency, or violent and impetuous Motion in the Blood, tho' it cauſes a Preternatural *Heat* in the *Skin*, is not always attended with the Effect of *Sweat*, unleſs the Humours be duly attenuated, rarified and refined by frequently



ly circulating with the Blood. For, by the Rules of *Mechaniſm*, a due Secretion requires not only clear Pores, and a proportioned reſiſtance of the Solids, but likewise a proportional Motion and Quantity of the Parts of the *Liquid* to be ſtrain'd out, for if either of thoſe be wanting, the Matter to be ſeparated and thrown out, will either be obſtructed, or carried off a preternatural way.

Now the *Character* of all kinds of *Sweat*, being beſt known by their *Issue* and *Effects*, 'tis not to be doubted, that the *Sweat* muſt be good and Salutary, whereby the Diſeaſe is mitigated, and comes after the Signs of Concoction, a *Rigor* or *Shivering*, is Copious and Warm, and equal all over the Body. Such a *Sweat* denotes Power and Strength in the Patient, and a free *Circulation* of the Blood.

Such *Sweats* as are *profuſe* and laſt long, happening without any apparent Reaſon, ſignifie a full and Plethorick Body, (a) full (a) Apl of Crudities, and very often become *Colliqua-* 41. § 4. *tive*, that is, they carry off a great Quantity of the Nutritious Particles, as if they were melted and rendred more fluid than ordinary; and caſt out by the Pores of the Skin. whence it comes to paſs, that the Blood being continually impoverished, becomes *Sharp* and *Hot*, *Heſtick* and *Feveriſh*, and the ſolid Parts of the Body, by this Means, being alſo depriv'd of their requiſite Nouriſhment, do by Degrees waſt and fall into an *Atrophy*. This profuſe and *Colliquative Sweat*, as it accompanies

accompanies every *Consumption* of the *Lungs*, in the deplorable ſtate, and higheſt degrees of it, or when it is haſtening to a fatal *Period*, ſo is it obſerv'd in the lamentable ſtate of every *Diſtemper*, and the *Diſſolution* of *Nature* always follows it.

Reducible to this is *Baglivius* his Obſervation, “ That if a copious and univerſal *Sweat*,  
 “ with an extream Weakneſs, comes upon  
 “ an obſtinate *Colick*, it denotes an approach-  
 “ ing *Palfy*; but when it comes upon a  
 “ *Loofeneſs*, it cures and ſtops it, the Hu-  
 “ mors being tranſlated to the Habit of the  
 “ Body. And if one doth not ſweat upon  
 “ the Adminiſtration of proper Medicines to  
 “ provoke it, it will break out upon letting  
 “ of Blood, eſpecially if the Stop was ow-  
 “ ing to an over-bearing Croud of Humors,  
 “ and ſtiffling as ’twere in the Veſſels: For  
 “ when the vital Fire has more room allow’d  
 “ it, it is thereby rather blown up than ex-  
 “ tinguish’d, and then the *Serum* is thrown  
 “ out to the Cutaneous Glands.

The Reverse of *profuſe*, *long-continu’d*, and *colliquative Sweats*, are thoſe that are *ſhort* and *interrupted*, but in ſome *Diſtempers* equally *pernicious*. When the Humor to be ſeparated by *Sweat* hath gone ſeveral rounds with the circulating Blood, and thereupon is only partly concocted, rarified and render’d fluxible, the *Sweat* ſometimes appears, and then is *interrupted*; ſometimes ’tis very in-  
 conſiderable, and then more copious all the Body over, or in this or that part, as it is diſſolv’d, ſeparated and ſtrain’d into the  
 Glands



*Glands* and *Pores* of the *Skin*. But after all, this is but *partial*: and tho' there is nothing more uſual in *Intermitting Fevers*, and that *cum Euphoria*; yet, in thoſe that are more acute, it ſpeaks an extream *Lentor* and *Viſcidity* in the *Humors*, and *Contraction* or *Obſtruction* in the *Cutaneous Glands*, a languiſhing *Motion* of the *Blood*, and a vain *Attempt* of *Nature*, eſpecially if ſuch *Sweats* happen at a *critical* time.

That *Sweat* ſhould be *cold* (than which nothing is more *Omenous* in *Fevers* \*) when \* Aph. 37. S. 9. at the ſame time, the *Heat* of the *Skin* is intense, is fairly accountable, if we conſider, that if the *Humors* be of that nature, that notwithstanding the continual *Flux* of the *Blood*, only ſome of their *Parts* are attenuated, and ſome thin *Liquor* is ſtrain'd through the *Sudoriſick Glands* after the uſual manner; or perſpir'd through the *Cutaneous Pores*, reſembling *Sweat*, which indeed tells us, that the *Glands*, theſe little *Tubes*, and *Receptacle* of the *Humors*, are ſufficiently open'd. But we are to obſerve, that if the *Humors* to be ſeparated this way, be not alſo concocted and ſubtiliz'd, they muſt lodge in the *Glands*, and the ſmall *Portion* of that which reſembles *Sweat*, muſt be cold, by reaſon of the great diſtance from the *Heart*, and almoſt without the *Limits* of *Circulation*. When the *Fever* is not of the acutelt ſort, this *cold Sweat*, if it is likewise frequent and interrupted, ſignifies a lengthening of the *Diſtemper*; and that, after ſome time, the *Humors*, tho' yet groſs and viſcid, flow and  
influxible,

influxible, may at laſt be attenuated to that Perfection, that may take it quite off: But ſuch *Sweats* are always *unnatural*.

Again, when the Body is loaded with cold and thick Humors, which by the Arteries are carry'd into all the Parts, but by reaſon of their *Lentor* are not ſo readily derived into, or *fluxible* in the Veins, where the impulſive Motion is weakeſt, eſpecially in the extream Parts, in which, when this cold and groſs Humor is congeſted and naturally diſſolved into *Sweat*, it muſt neceſſarily be *cold*, becauſe the Humors are ſuch. And if this *cold Sweat* be owing to no other Cauſe (for thus it happens in *Lethargick* Diſtempers) the *Symptom* is not ſo dangerous as in the caſes but juſt now mentioned. But when it is owing to a Flaggingneſs and Laxity of the Fibres, the caſe is *deplorable*. Thus alſo in *Fainting Fits*, a *cold Sweat* breaks out all over the Body, but eſpecially about the Neck, Temples and Breſt, and proceeds from an interrupted Circulation of the Blood; upon which the Parts become cold, and an aqueous Humor or Moiſture, by reaſon of the Weakneſs, Flaggingneſs and Laxity of the Parts rather than by ſtraining or compreſſion, appears upon the Skin; or, the perſpirable Matter being now to break out, but wanting a due Heat to rarify its Parts, and carry it off after the uſual manner, is form'd into a Liquor reſembling *Sweat*.

'Tis pretended to foretel an *approaching Sweat* by *iſpection* of the *Urine*, from *Hipp. Obſerv.* (a) namely, when *thin Urine* is follow'd



low'd by that which is more *gross* and *thick*, because the last being less watery, and containing a lesser quantity of the liquid part than the first, this aqueous part must be translated elsewhere, namely, into the Cutaneous Glands, as the solid part into the *Urine*. And because the liquid part of *Urine* and *Sweat*, as well as their *Salts*, partake of the same Nature, 'tis not unreasonably suppos'd, that *thick* and *gross* *Urine* coming after that which was *thin*, may *presage* an approaching *Sweat*. For there is nothing more obvious, than that the more of *Liquids* and *Salt* that's carry'd off by *Sweat*, the less goes by *Urine*, and consequently is more thick and coherent.

There is no one but knows how dangerous it is, when one in a continual, or such like *Fevers*, is a *sweating*, and at the same time is taken with *Horror* and *Shivering*: For such *Sweats* tell us, that they are not only *partial* and *imperfect*, but also that the noxious Humors cannot be discharg'd *critically*. The like is to be said of those *Sweats*, which happen in the beginning of Diseases, especially in *malignant Fevers*, tho' accompany'd with other good *Signs*. For in these *Fevers* the Patient sometimes *sweats* the first day, and the *Fever* seems to remit; but then, other worse *Symptoms* appear, and after many such *Sweats*, the Patient dies; for such frequent *Sweats*, by which the Distemper is not mitigated, may always be suspected to proceed from a wasting and consumption of the Body.

But

But the leſs *Malignity* (to uſe that Term) there is in thoſe *Fevers*, ſo much the more beneficial are the *Sweats*, as well as in all other *Fevers*, providing that after them the *Symptoms* are not worſe: For by this manner of *sweating*, the Febrile Matter is rarefy'd and attenuated by degrees, and alſo carry'd off by *inſenſible Perſpiration*, which upon this account, and in this caſe, as well as all others, ought never to be interrupted or diverted, according to the Excellent *Sanctorius* his Caution (a). For, as *Fevers* and moſt other Diſtempers are owing to an obſtructed *Perſpiration*, ſo is it one of the Ways, and the neareſt too, that Nature hath contriv'd for the cure of them.

(a) Sanct.  
Aph. 47.  
S. I.

When the Orifices of the Cutaneous Glands, by long continued and *profuſe Sweats*, are too much open'd, or by a vehement ejection of groſs and crude Matter; there follows a Senſe of *Wearineſs*; eſpecially, if thoſe Parts have been diſtended a long time, (for a long Diſtention of the Fibres deprives them of their *Elaſticity*;) they recover their *Tone* and Continuity with great difficulty. This is alſo one of the Inconveniencies and Effects of *forc'd Sweats*. But there is yet another of more fatal and dangerous conſequence, namely, when *Sweats* are untimely *provok'd* and *forc'd*, in *continual Fevers*, *Small Pox*, and other like Diſtempers; whereby a greater Inflammation is rais'd in the Blood, eſpecially in thoſe that are young, and of a hot Conſtitution: For they ſweat with difficulty, and the more they endeavour to force Sweat by ſtrong



ſtrong Diaphoreticks, and other ways, ſo much the more are they in danger of falling into *Frenzies* or *Deliriums* : For, by the Acceſſion of new Heat, the *Texture* of the Blood is diſſolv'd, or ſtagnats in the Capillary Veſſels of the Brain.

So that *Evacuations* by *Sweat* are to be attempted with the greateſt caution, not indifcriminately by all Perſons, nor at all times : For if Medicines to procure it be given when the Blood is of a *Texture* not open enough (which it cannot be near the beginning of moſt Feveriſh Diſtempers) or when too heterogeneous Subſtances abound in it, *forc'd Sweats* oftner diſpoſe the Blood to ſtagnate in the tender Veſſels of the Brain and Nerves, than to ſeparate its noxious Particles at the deſign'd ſecretory Parts ; and a more violent Motion being thereby raiſed in it, the Confuſion of its Parts muſt be increaſed, and other Diſtempers more dangerous and more hardly to be remov'd, introduc'd.

I know that this ill Cuſtom of *forcing Sweats* untimely, whether by inward Medicines or outward Application, ſo common now-a-days (as I am ſatisfied that to this Method are owing many obſtinate Diſtempers, which, by calming, inſtead of exagitating and inflaming the Blood already diſturb'd, would have gone off) are preſcrib'd with an intent to render the Fluids of our Bodies the more fluxible and brisk in their Motion, whiſt in the mean time the fibrous and ſolid Parts may be either naturally, or by reaſon of the Diſtemper, too much contracted.

tracted. But 'tis plain and obvious, that upon the administration of hot and spirituous Medicines, in the beginning of the Distemper, and while the Humors are crude and unconcocted, and unfit to be separated, those Parts are not only the more contracted, but their Fluid rendred impetuous, and remarkably more violent in its Motion: So that, by the *Nisus* of the one and Resistance of the other, the *Viscera* must be distended and distracted, and variously affected with *Pains*, *Deliria*, *Watching* and *Convulsions*.

*Spontaneous Sweats* therefore must be the *safest*, and more effectual for the cure of *Feverish* Distempers, than those that are preposterously *forc'd* and *provok'd*; which, as we have seen, inflames the Blood, exasperates the Distemper, and expelleth the crude Humors any way; so that they not only fall upon the *Brain*, but also sometimes upon the *Pleura* or Membrane that covers the Ribs, and thus becomes the cause of *Pleurisies*, and sometimes they fall upon the *Lungs*, which occasions a *Peripneumonia*: Besides that too great a quantity of *Serum* thus evacuated, must drain the Blood; and when its Moisture, wherewith it ought to have been diluted, is quite wasted, 'tis no wonder if the just now mentioned Inconveniencies and fatal Symptoms follow soon after. For we see how unsafe and preposterous it is to attempt the removing even of *Tertian* and *Quotidian* Agues by violent Diaphoretick Medicines, and the administration of the *Quinquina*, when they are new, *i. e.* almost of the nature



ture of *continual Fevers*. 'Tis true, as ſoon as the *Sweat* breaks out, *Restleſſneſs* and other *Symptoms* vaniſh immediately: Yet it very often happens, that if the *Sweat* be forc'd more than it ſhould, the *Fever* which *intermitted*, terminates in a *continual* one, to the greater hazard of the Patient.

*INSENSIBLE PERSPIRATION* having been mentioned, as one of the *Animal Excretions*, might properly have fallen in to be conſidered here, if the *Doctrin*e of it was not to be had in *Sanctorius* his excellent Book *de Statica Medicina*. But it may be adverted to, that if his excellent *Obſervations* were more generally known, and the ſolid *Rules* and *Precepts* of *Health* that may be drawn from them, better obſerv'd, we might hope to have the *Catalogue* of *Difeaſes* either leſſen'd and ſunk in their number, or better known, and many of them cured with leſs expence of time, more eaſe and ſafety than now they are. Many are ſenſible of the direful *Effects* of an *obſtructed Perſpiration*, that don't know or conſider, that a free and regular one, is equally neceſſary with the other more ſenſible *Evacuations*, to the preſervation of the *Animal Life*.

And tho' the ſubtile inſenſible *Effluvia*, that are diffuſ'd and fly from our Bodies, be only the Produce or Excrement of the third and laſt *Concoction*, or *Rarefaction* of that *Liquor* in the *Cutaneous Glands*, which are as 'twere ſo many *Viſcera* and *Ventricles* for concocting and making it *perſpirable*. Yet,

when theſe are obſtructed (which often happens) 'tis hardly credible how many ways the Animal Functions are thereby interrupted and rendred deficient : For when that which ſhould have been perſpir'd, is ſhut up and incloſed, the Excretory Duets muſt be diſtended, the Capillary Veſſels ſtraitned, the Blood augmented and inflamed, and its Channels embowlden'd ; and if it be not taken off by *ſpontaneous Sweats* and *Urine*, &c. Diſeaſes are inevitable : For the *perſpirable Matter*, if lodg'd a long time in the Veſſels, muſt either inflame the Blood, or clog it in its Circulation, or coagulate, putrify and corrupt it, and at laſt be the productive Cauſe of *Fevers*, *Apoſtems*, *Catarrhs*, *Eryſipelatoſe* and *malignant Fevers*. All which are not only prevented, but often cured by a due and regular *Perspiration*, which takes off a greater quantity of *Morbifick Matter in dato tempore* (a), with reſpect to its *Ponderoſity*, than any other Evacuation whatſoever. So that Diſeaſes *intra Animal* owing their Riſe to the want of it, by augmenting the quantity of the Blood in its Veſſels, are taken off in leſs time by *inſenſible Perspiration*, than by the more *ſenſible* Excretions.

(a) Sanct.  
Aph. 59.  
§ 7.

'Twere endleſs to rehearſe the many and different Cauſes of an *obſtructed Perspiration*, only we may take notice of a few among others here and there accounted for by that Ingenious Author, and they are theſe, namely, *Pains*, *hard Labour*, *Paſſions of the Mind*, *Cold*, *Reſtleſſneſs*, *purgative Medicines*, *Looſeneſs*, *Vomiting*, *too many Clothes*,  
*profuſe*



*profuse and unseasonable Bleeding, strong feeding, especially in the Morning, immoderate Watchings, damp and moist Air, swimming in cold Water, gross and viscous Food, want of exercising the Body and Mind, and Abstinence from Venery in those of a brisk and strong Constitution.*

Thus we have seen how many and different ways a Human Body is freed and disengag'd from its Impurity, Excretions, and those Humors that are *heterogenous* to, and inconsistent with its *Oeconomy*, especially in the Attacks of *Acute* Distempers, whose Course is swift, nice, and dangerous, if compar'd with those that are more *Chronical*, the Impressions of which not being so sharp, or commonly attended with such fatal *Events*, tho' of a longer standing and continuance.

There is yet *another*, different in its nature from all the former, in being a Disorder of the *Great Spring* of the *Machine*, or a Raging and Ebullition of the *Blood* or *Vital Stream*, by which it leaves its proper Channels, and breaks out on a sudden, and *impetuously*, at the Nose, *Hæmorrhoids*, and other places. This active Liquor of the Veins and Arteries, hath been often cool'd and check'd in its impetuous Motion by this *spontaneous Eruption*, to the recovery of the Patient. Hence it is, that in imitation of Nature, *Physicians* in all Ages have been taught to open the Veins, not daring to trust to or confide in its own management, in those Distempers that are commonly called *Acute*, as raging Fevers, and *Inflammations* of the

*Viscera*, &c. chiefly, becauſe all *ſpontaneous* and natural *Hæmorrhages*, have not been attended with a happy and fortunate *Event*, many of them having been only Forerunners to certain Death.

Thus, a few Drops of blackiſh colour'd Blood iſſuing from the Noſtrils in continual Fevers, accompany'd with a cold Sweat, livid and black Excrements or Stools, is a *per-nicious Sign*, as was above obſerv'd; neither doth it deſerve a *better Prognostick*, when this manner of bleeding at Noſe happens in other Diſtempers, if it is inconfiſtent with the Nature of the Diſeaſe, the Conſtitution of the Patient and of the Air, the Season of the Year, and manner of living, and Diſeaſes that have their riſe from Phlegm, and the like. For ſuch Diſtillations of *Blood*, eſpecially if it be *blackiſh* and *dark-coloured*, either denotes a *Plethory* of it in the *Brain*, or a *Lentor* and *Coagulation* in its Capillary Veſſels or adjacent Channels. By ſome it hath been ſuppos'd to be a latent Sign of *Worms*, when it happens in continual Fevers; but nothing of this can be affirmed for certain. Only it may be noted, that *Bleeding* at Noſe ſeldom or never ſucceeds well in Spotted Fevers, eſpecially when attended with many grievous *Symptoms*.

It likewiſe deſerves to be obſerv'd, that if a few Drops of *Blood* come from the Noſe on the fourth Day of the *Fever*, and the Patient hath been *ſneezing* ſome time before, and the Sediment of his *Urine* is white; this *Hæmorrhage* is far from being a dangerous Sign;



Sign ; Becauſe, ſometimes the *Capillary Arteries*, which are diſtributed to the internal Part of the Noſe, may be broke by the Violence and Concuffion of *Sneezing*, and therefore this *Blooding at Noſe*, cannot be reckoned among the *Symptoms* of the *Fever*.

We have therefore reaſon to believe, that, there is leaſt Danger in *Eruptions of Blood* at Noſe in Fevers, when it is *Plentiful* and *Copious*. For, when the Parts of the Blood are rarified, its *Niſus* upon its Channels is the greater, which, when the *Capillary Arteries* cannot reſiſt, they muſt be broke at laſt, and thus give way to the more powerful Motion of the Blood ; and thus ſometimes contribute to the Recovery of the Patient, in cooling and calming the remaining Part of the Blood in the Veins, and promoting *inſenſible Perſpiration*, providing the *Hæmorrhage* be not *Profuſe* and *Immoderate*. For, in this Caſe, the *Event* muſt be *fatal*. So that *Blooding at the Noſe* is never accounted a good Sign, unleſs it give eaſe to the Sick, take off *Thirſt* and other Symptoms of the *Fever*, or at leaſt mitigate them, and render the *Pulſe* ſtronger, more brisk and equal.

To inquire into the *State* of the *Blood* in the Diſorders of Sickneſs, and what's portended by it, may ſeem to belong to another Province ; namely, the *Diagnostick* and practical part of *Phyſick*, nothing being more neceſſary to accompliſh the Cure of moſt Diſtempers ; eſpecially thoſe that are *Feveriſh*, than to conſider the Blood in all its Circumſtances and Accidents, as its Co-

lour and Conſiſtance, and whether it is too thin, rapid and inflamable, or too thick, viſcous, roapy, apt to congeal and ſtagnate, and if it be of too bright a Red, and loaded with plenty of volatile and inflamable Parts, or of a Terreſtrious and blakiſh Colour, &c.

But it may not be much beſides the preſent purpoſe, to take notice of ſome Obſervations, that have commonly been made concerning the *Blood* taken from the *Veins*, and what is *preſaged* by it. Firſt then, it hath been obſerved, that,

In Inflammations of the internal Parts, eſpecially in *Pleurifies*, the *Blood* taken from the *Veins*, has a *white Cruſt* or Gelly upon its *Surface*, which ſeems to be the Nutritive Chylous Part of the Blood, diſingag'd from its Maſs, and gathered into this *Cruſt*, by the exceſſive heat of the Blood, overſtocked with volatile Particles. That the Blood of *Heſtick* Perſons, is of a *bright red Colour*, and doth not eaſily *congeal*, and at the ſame time, they are lean, watchful, peeviſh, &c. from whence 'tis inferr'd, that there is a Redundancy of Humours in their Fluids. That the *Blood* of thoſe in *Malignant* and *Peſtilential Fevers*, if it appear Pure and Natural, is a moſt dangerous *Sign*, and ſpeaks more of *Malignancy* to be lodg'd in the Veins neareſt to the Heart, than can be brought forth by Blood letting. And that the Blood drawn from the Veins before the Eruption of the *Small-Pox*, having the fore mentioned *Cruſt* on its *Surface*, denotes, that the *Small-Pox*



Pox will be very Numerous and Dangerous.

But, besides these more than common Remarks upon the *Blood*, 'tis usual with some in opening a Vein, to observe its various *force*, the Degrees of *Heat*, the *Colour* and Changes that happen to it, the proportion of the *Grumous* part of the *Blood*, compared with its *Serum* and *Colour* of both, and especially, to contemplate its *Scum* and *Froath*, and to form their *Auguries* and *Predictions* accordingly; which nevertheless, are founded upon uncertain *Theories*, long since exploded. For,

Besides, that the very Contemplation of those *Appearances* impose upon our *Senses*, and therefore the Conclusions taken from them must be doubtful and uncertain. The *impetus* of the *Blood* in issuing from the Vein, may be owing to the vigour or fainting *State* of the *Mind*, as well as the largeness or straitness of the Wound made by the Lancet, and the time that intervenes between the incision of the Vein and binding up the Arm. For, the longer the time is, the *Blood* issues forth with the greater *Violence*, and the first *Impetus*, that is, before the Vein be a little emptied, is *brisk* and *Rapid*. But in a little time it becomes more *Weak* and *Languishing*, unless the contrary happen, that is, the Patient through fear or fainting, hardly bloods one drop in the Beginning, but after Recovery, the Blood issues forth in a large and plentiful Stream.

Again,

Again, an enquiry into the *Heat* of the *Blood* by the *Touch*, is no leſs precarious and uncertain, being, that it may have this or that *Degree* of *Heat*, according to the *Conſtitution* of the Patient, the *Paſſions* of his *Mind*, and *Spirituſuous Liquors* taken before or after the *Operation*.

Neither can it be known whiſt the *Blood* comes from the *Veins*, whether it be *Good* or *Bad*, or whether that which comes firſt be *Pure* and *Sincere*, and that which comes afterward *Impure* and *Corrupted*, and *è Contra*. For, ſuch a diſparity in the *Blood* while it gusheth out with *Rapidity* can hardly be obſerved by the niceſt *Eye*, unleſs its *Colour* be manifeſtly different from that which is natural; that is, that it reſembles *Cream* or *Chyle*. And the *Appearance* of one ſort of *Blood* coming in the beginning, and another ſort in the *Progreſs*, is meerly accidental, and the *Obſervations* made upon both; namely, that the firſt ſort of *Blood* being followed by that which is *impure* and *corrupted*, ſignifies *malignant Humors* in the *Viſcera* or any inflam'd Part, and that *pure* and *good Blood* coming after that which is *bad*, a total *Exterpation* of the vitious *Humor*, is falſe and uncertain. For, this *Change* is owing to contingent and uncertain *Appearances*, and the *Obſervations* made concerning it, repugnant and contrary to the *Laws* of *Circulation*, the internal *Inflammations* of the *Pleura* and *Lungs* excepted, in which Caſes the diſparity of the flowing *Blood* is very remarkable. But after all, the *Inflammation* is  
not



not always immediately, or ſome time after taken off by drawing forth ſuch Blood; neither are the Symptoms mitigated, which neceſſarily ſhould be, if the Blood cauſing the Inflammation were Evacuated. And 'tis uncertain whether all the grumous and impacted Blood be drawn off from the Interſtices of the Fibres of the inflam'd Part; or, whether *good Blood*, coming after that which is *bad*, more of *this* be not yet remaining.

And no leſs uncertain are the Obſervations that are made upon the *Livid*, *Whitiſh* and *Yellow Cruſt* upon the *Surface* of the Blood, it being rather a crude indigeſted *Chyle*, intimately mixed with the Blood (for, it inflames being put to the Fire) than a Pituitous or Phlegmatick Excrement. And 'tis not to be doubted that this *Gelly* is the morbiſick Matter of a great many Diſtempers; eſpecially, *Pleurifies* and *Rheumatisms* which are always accompanied with a Heat in the Blood, and a viſcous thickneſs in its *Serum*. So that 'tis ſtrange, any ſhould think that this *Cruſt*, is only to be obſerv'd in the Blood of thoſe of a cold Conſtitution, it being ſo commonly and frequently obſerved in the *Acuteſt Fevers*, and therefore is ſo far from ſignifying a *Phlegmatick Crudity*, that 'tis rather the Produce of an *Exceſſive Heat*.

Laſtly, We are not to look upon the *bright rediſh Colour* of *congeal'd Blood*, to be always a *Sign* of Recovery, or of ſound Health, or that which is *Party Coloured* and interſpers'd

ſpers'd with Spots of a *livid* and *blackiſh* Colour to be fatal and *Omenous*. For the Blood of thoſe in a Mortal Fever and dying State, hath often been obſerved to be *bright* and *rediſh* in its Colour, and thoſe to have eſcaped and recovered, whoſe Blood hath been *Party Coloured*. And 'tis as plain as certain, that the *Blood* immediately taken from the *Vein*, is not *Flame-Coloured*, nor becomes ſuch but by the influence of the *Air*; neither is it of this Colour all over, and in the *Middle*, but only on its *Surface*, which is hardly a Hairs-breadth. For in the *Middle* as every one knoweth it is *Blackiſh-Coloured*, and when cut and expoſ'd to the *Air*, in due time, 'tis colour'd like the *Surface*. Neither is the extraordinary *Texture* of the Blood and *Serum* reſembling *Milk*, always to be accounted the moſt Dangerous and Mortal Sign: For, in the Progreſs of the Diſtemper, this ſort of Blood is changed into a more natural Colour. So that 'tis plain what a due Caution and Circumſpection is requiſite, not only with reſpect to Blood-letting, but alſo to the Adminiſtration of Medicines upon its *Appearances*, and forming *Auguries* concerning it.



## C H A P. XI.

*Of Prognoſticks taken from Reſpiration  
and manner of Breathing.*

**N**Othing is more conducive to form juſt *Predictions* or *Auguries* concerning Diſeaſes, than to know the Weakneſs and Strength of the Patient. If *Nature* is ſtrong and vigorous, one cannot die, ſays *Galen*, than which nothing is more true, with reſpect to ſome Diſtempers. But the Power and Strength of *Nature* is beſt known by its Actions, and the exerting of its uſual Functions, a due Circulation of the Blood, Secretion of Humours, and Generation of the Liquid called *Animal Spirits*; all which, depending upon Motion, muſt be performed by the Organs that Nature (which is never wanting in what is neceſſary to its Deſigns,) hath appointed.

This in nothing is more Notorious than in *Reſpiration*, by which the *Air* comes into our Breasts by the Mouth and Noſe, but makes no long ſtay there, being again e-jected or preſſed forth, and we ſupplied with more freſh *Air*. The *Dilatation* and *Compression* of the Breast is obvious, and that this Motion is ſucceſſively continued, allowing ſome *Pause* between *Inſpiration* and *Reſpiration*, and that 'tis in our Power  
to

to alter this *Vicissitude* as to *slowness* or *frequency*; but, that of necessity we must breathe. For, if Breathing be altogether interrupted, *Suffocation* and *Death*, must needs follow.

But, as *Respiration* thus in *General*, is absolutely necessary to the preservation of *Life*, 'tis no less such for promoting the *Motions* and *Functions* of *Humane Body* in *particular*, and one of its *Primary Uses* ( of which the promoting of the *Circulation* of the *Blood*, by the constant Motion of the *Diaphragma*, *Intercostals* and *Muscles* of the *Breast*, is undoubtedly the *Principal* ) seems to be that of refining and attenuating the *Blood* in the *Pulmonary Vessels*, before it passes into the *Pulmonary Vein*, and thence into the left Ventricle of the *Heart*. For,

The *Blood* in its circulating Motion, must undergo a Thousand Changes and Alterations, not only in separating part of its Substance for Nutrition and Muscular Motions, but chiefly in receiving *Heterogeneous* and *Excrementitious* Particles, by the Accession and Addition of New *Chyle* from the *Thoracick* and *Lymphatick Ducts*, which, meeting in the right Ventricle of the *Heart*, fills it with that whitish and *Chilous* Liquor, which, according to frequent Experiments we see in *Dogs* dissected some Hours after being fed : So that the *Blood* in the right Ventricle, passing into the *Pulmonary Artery*, is mixed and impure with respect to its Quality and Consistence, and must needs be divided, attenuated, and subtiliz'd, and its Grumous and Glutenous Parts rendred more  
flexible



fluxible in passing through the Pulmonary Channels to the left Ventricle, and thence into the great Arterie. That thus the new Chyle, or whatever is *Heterogeneous* to the Blood, should be attenuated and refined in the *Pulmonary Vessels*, and brought to a perfect *Crasis* and Disposition, seems to be very plain from the *Structure* of the *Lungs*, and their Motion in *Respiration*. For, their *Lobes* being branch'd out into innumerable Capillary Channels, through which the Blood must pass, its Parts must necessarily be bruised, pressed upon and divided; and thus rendred the more *fluxible*, through the Capillary Vessels, all the Body over, and adapted to be deriv'd from the *Arteries* into the *Veins*, and from the Capillary ones of the last into their greater Channels.

And as *Respiration* (not to mention its other Uses, or attempt to account for its *Mechanical* and moving Cause) contributes to prepare and bring the Blood to its natural and determinated *Crasis* or Constitution for the Duties of Circulation; so on the other hand, when the Blood is purified, unmix'd and fluent in the Pulmonary Channels, *Respiration* is promoted, made *Easy* and *Natural*, and thus becomes one of the necessary Conditions without which it cannot be either.

But besides this due *Constitution* of the *Blood* that's requisite to a natural and *easy Respiration*, there are others no less necessary; namely, a liberal *Flux* of Animal Spirits into the Intercoastal and *Muscles* of the *Breast*, (notwithstanding they want *Antagonists*)  
For,

For, in *Inſpiration*, the *Air*, by reaſon of its *Elaſticity*, inſinuating it ſelf into the Cavity of the *Breaſt*, dilates and fills it; whereby thoſe Muſcles being contracted more than uſually, muſt, by reaſon of the *Elaſticity* of their Fibres, recover their former State, and partly, at leaſt, contribute to the Ejection of and preſſing out the *inſpired Air*, which, without an *influx* of Spirits could not be effected. 2dly, A due conformation of the *Breaſt* and its Cavity. 3dly, That of the *Lungs*; and, Laſtly, A well conſtituted *Air*.

Theſe being the Conditions that are abſolutely neceſſary to an *eaſy* and natural *Reſpiration*, 'tis readily conceivable; that, if one or all of them be wanting, one cannot *breath* but with *difficulty*; But the *Modis* and *Causes* of an *uneaſy Reſpiration*, being ſo various and almoſt innumerable, being, that every one of its *Organs* may a Thouſand ways be vitiated; it will be proper to ſuperſede the recital of them, and confine the following Obſervations to that which is owing to a Defect in the *Lungs*, that is, the *Aſpera Arteria*, or *Wind-Pipe*, and the ſeveral parts of it, the Subſtance of the *Lungs* and Blood Veſſels that are in it; and that with reſpect to *Fevers*, and ſuch like acute Diſtempers.

An *uneaſy* or different *Reſpiration* as every one knoweth, is of three ſorts, which nevertheless differ one from t'other only in Degrees. Thus, A *Dyſpnæa* is little different from a natural *Reſpiration*, only 'tis more  
quick



*quick* and *low*, or *loud* than usual, without a *Fever* *snorting* and *hissing*. An *Asthma* is yet more uneasy, the *Respiration* *quicker*, with *snorting* and *hissing*, but not accompanied with a *Fever*. Neither is an *Orthopnea* accompanied with a *Fever*; but the difficulty of *Breathing*, is yet greater than in the former *sorts*, being *lower*, *quicker*, or more *slow*, so that one cannot *breath* without having his *Body* set upright.

Now the *Causes* of an *uneasy* and difficult *Respiration*, and the fore-mentioned differences of it, may probably be these; namely, that in the first sort, there is a greater than usual *afflux* of *Spirits* into the *Muscles* of the *Breast* and *Ribs* (if it be allow'd that these are not merely passive in *Respiration*) by which, the *Motions* of *Breathing* are rendred more *frequent* and *loud*: For we see one breaths after this manner of his own accord, with an intent to have some *Ease* thereby. Again, an *Asthma*, in which the *Respiration* is more difficult than in the former, is occasioned by whatever can obstruct the *expansion* of the *Lungs*, either by straitning or pressing upon them. The same is owing to a pressure upon the *Wind-Pipe*, or whatever *liquid* or *solid* that may happen to stuff or fill up its *Cavity*, or render it narrower than is usual. To this must be ascribed the *hissing* and *snorting* that's observable in those affected with this Distemper. For, the narrowness of the *Wind-Pipe* in obstructing the *Entrance* or *Admission* of the *Air* into the *Lungs*, must necessarily be the

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cause of this *Appearance*. Hence it is, that in an *Orthopnea* one must sit upright, that the *Air* may pass the more easily into the *Aspera Arteria* and *Lungs*, in which Posture only he can breath a little, *that* being press'd upon from without, or straiten'd within by *Tumors*, &c. Add to this, too thick, cold, moist and dry *Air*, by which also the *Expansion* of the *Lungs* is obstructed, and by the *Blood*, when it is too thick, viscid, hot, fervent, violent in its Motion, and when the *Vessels* of the *Lungs* are impacted with Dust, Stones, cold and viscid Humors, thicken'd *Lymph*, and stagnated Blood, &c.

And here we are to observe, that tho' all these Degrees of a difficult and *uneasy Respiration* may happen to be without any *Fever*; yet every of them may be accompany'd with it, according to the Nature of the Distempers to which the Difficulty of *Breathing* is owing. Nay, it often happens, that an *uneasy Breathing* is productive of a *Fever*. Thus, for example, when the *Lungs* are straiten'd or press'd upon, and thereby a *Peripneumonia* induc'd, the Difficulty of *Breathing* that follows upon it occasions a *Fever*, which is always accompany'd with an Inflammation in the *Lungs*. We are likewise to take notice, that Difficulty of *Breathing* is either *Idiopathetical* or *Sympathetical*, *i. e.* an essential or primary Distemper, or caused by consent; and that the first may be continual, and without interruption, if it is meerly owing to an Indisposition of the *Lungs*, and also the second, if its *Cause* be continual.

But



But if it affects the *Lungs* periodically, and by way of *Paroxysm*, the *Asthma*, &c. must be *sympathetical* and *periodical*; and an *essential Asthma* may be likewise *periodical*, as often as the Cause to which it is owing, is at certain times taken off and mitigated.

This being premis'd in pursuance of our purpos'd Design of enquiring what's *presag'd* and *pretended* by the various Appearances of *Respiration*; it will in the first place be granted, that (whatever the Distemper be) when *Respiration* is easy, and little different from that which is natural, there is nothing more encouraging to the *Physician*, or promising to the *Patient*; inſomuch that it tells us, that the *Heart* and *Lungs*, the *Diaphragma* and *Pleura*, the *Muscles* of the *Breast* and *Ribs* are sound and unaffected. But in *Feverish* Distempers, we must be aware, that their *Malignancy* do not impose upon us: For, in ſuch, the *Respiration*, *Urine*, and *Pulse*, as was above observ'd, often resemble that of one in Health.

Sometimes the *Respiration* is *loud* and *quick*, in which ſtate much *Air* is often inspir'd and expir'd at Mouth and Noſe very hot and fervent. This manner of *Breathing* may be commonly obſerved at the beginning of hot and continual *Fevers*, *Invaſion* of the *Small Pox*, and *Peripneumonick* Distempers. For, in the *first* of theſe, *Respiration* comes to be ſo uneasy and difficult, by reaſon of the unuſual quantity of hot and fervent Blood running through the *Veſſels* of the *Lungs*, where its *Parts* are rarefied, and preſs ſo much upon  
L 2 the

the ſides of their Channels, that they muſt be continually *expanded* and *diſtended*, and their *Niſus* to recover their firſt ſtate, overpower'd and rendred ineffectual. Hence it is, that in this caſe, to be eas'd and reſreſh'd, and to mitigate the Heat, and take off the *Tenſion* of the Veſſels, one fetcheth his *Breath* ſo often, and the *Reſpiration* is ſo *quick*, and alſo *loud* and *great*; chiefly, becauſe the *Blood* being yet brisk and ſpirituouſ, and not impoveriſh'd by the continuity of the *Fever*, there is an unuſual *Afflux* of Animal Spirits into the *Muſcles* of the *Breaſt* and *Diaphragma*, &c. and thereupon are the more contracted, and the *Cavity* of the *Breaſt* enlarg'd, and the Sick blows and pants after *freſh Air* for mitigating his inward Heat and ſenſe of his Pain, cauſed by the Preſſure of *Blood* upon his *Lungs*.

Neither is this *manner* of *Breathing*, in the juſt mention'd, or any other ſort of *Fevers*, accounted one of the moſt dangerous *Signs*, while the *Fever* is *new*, and the *Blood*, as we ſaid, brisk and ſpirituouſ, and Nature ſtrong and vigorous, at leaſt not much impaired and weaken'd. But here 'tis to be noted, that a large *Dilatation* of the Region of the *Breaſt*, is not always to be taken for a *loud Breathing*; for this often happens to thoſe whoſe *Cheſts* are narrow, or are affected with ſome inward *Tumor*, in which caſes, the quantity of *inſpir'd Air* is very inconfiderable.

And as to *Pulmonary* Diſtempers, 'tis as plain as 'tis certain, that upon the firſt invasion of them, the *Inflammation* is inconfiderable,



nable, and the *Lungs* may yet in ſome meaſure be *expanded*, notwithstanding the *Stimulus*, Pain, and Heat, wherewith they are affected; and therefore the *Respiration* may be *loud* and *frequent*, for the Reaſons juſt now alledged. But in the progreſs of thoſe Diſeaſes, the *Stimulus* and Pain, the Inflammation and *Tumor*, encrease by degrees, and harden the *Lungs*, and render them unfit to be *expanded*; ſo that the *Respiration* becomes *low* and *quick*, than which there is no *Sign* more *fatal*, not only in this, but alſo in other Acute and *Feveriſh* Diſtempers: For now the *Lungs*, through which the Blood ſhould often circulate in a little ſpace of time, are ſtuff'd and impacted; and therefore whatever is leſs *fluxible* in this Liquor, muſt ſtagnate in the *Pulmonary Veſſels*, whilſt that which is more *thin*, goes ſome *rounds* in *Circulation*, till it be quite ſpent, and the Sick breathes no more.

*Respiration* that's *low* and *ſlow*, is common and ordinary to thoſe in a *Delirium* (a), and a *Difficulty* of *Breathing* in that Diſtemper is mortal (b); eſpecially when the *Diaphragma*, one of the Inſtruments of *Respiration*, is inflamed, and therefore cannot be *contracted*; ſo that the Cavity and Motion of the *Breast* muſt be leſſer than is uſual, and conſequently the *Respiration* *low*. And when the Diſtemper has continued a long time, beſides the *Inflammation*, there muſt be a great expence of *Spirits*, without which the Motions of the *Breast* cannot be exerted; and therefore the *Breathing* muſt likewise be *ſlow*, ſometimes

\* Aph. 68. *interrupted and doubled (i. e. convulſive \*)*  
 §. 4. and accompany'd with Groaning, Sighing,  
 Expansion and Motion of the *Noſtrils*.

This *low and ſlow Reſpiration*, thus deſcribed, is deſervedly called the *Cold Breath*; and tho' it be hardly obſervable, yet 'tis moſt manifeſt in the Motions and Heavings of the Shoulder-blades and Breſt, that the Bed-clothes are ſenſibly liſted up, and the *Noſtrils* dilated, while there is little or no *Reſpiration*, and in a little time none at all. Thus ends the *Animal Life*.

The appearance of *Suffocation* in *Hysterick Fits*, is yet a *Problem*. In this Diſtemper, *Reſpiration* is not only *vitiated*, but ſometimes altogether *interrupted* with Coldneſs all over the Body, with an Interception of the Voice and Intermiſſion of the Pulse, want of Senſe and Motion, that thoſe that have been thus affected, have been taken for dead, and dreſſed for Interment. Now tho' it ſhould be granted that this *Difficulty* of *Breathing* were owing to *Narcotick Flatus's*, ariſing from the *Abdomen* ſtraightening the *Diaphragma* and *Lungs*, as happens in a flatulent *Aſthma*; or, that the ſtrangling and compreſſion of the *Throat* ſhould proceed from poiſonous and malignant Vapours, as

(a) Lib. de ſome are pleaſed to affirm; (for as to the  
 Nat. Mili- riſing of the *Uterus* like a little Globe or  
 ebr. (b) Lib. 6. Ball, another cauſe of this Appearance af-  
 Pathol. ſign'd by *Hippocrates* (a), *Fernelius* (b), *Eu-*  
 cap. 16. ſtachius *Rudius* (c), and others, is inconfiſtent  
 (c) Lib. 2. with *Anatomy*) or if we ſhould allow it to  
 Pract. cap. proceed from a Confuſion of the Spirits hur-  
 § 1. ried



ried disproportionally upon this or t'other Part, causing Convulsions and Pains, &c. according to *Sydenham*, but contrary to the Laws of *Animal Oeconomy*; yet still the Difficulty remains, how one can live so long a time without any apparent *Respiration*, and under the deadly *Symptoms* just mentioned.

'Tis true, that the *Muscles* that serve for the Motion of those Parts where is least resistance, for most part want *Antagonists*; of which sort are those of the *Breast* and of the *Heart*, into which, however more or less the Flux of the Animal Spirits is obstructed, the Motions of the Heart and Breast must be more or less *weak* or *strong*, and consequently the *Respiration* more or less vitiated. But if there be a *total Obstruction* of Spirits, there can be no *Respiration* at all; and so long only we can live without *Respiration*, as without the Motion and *Circulation* of the *Blood*, and that's a very inconsiderable time: For when the *Muscles* of the Breast are but a little contracted, its Cavity must be the less, and the quantity of *Air*, and that of the Blood admitted into the *Lungs*, proportionable; but when the Portion of *Air* is so little, that it is ineffectual for promoting the Motion of this inconsiderable Portion of Blood through the Capillary Channels of the *Lungs*, there it must stagnate, and there is no more Circulation. But after all, this *Appearance* is fairly accounted for by the Learned Doctor *Pitcairn* (a).

(a) Dissert.  
de causis,  
&c.

## C H A P. XII.

*Of Prognosticks taken from Convulsions,  
Privation of Speech, and Alterations  
of the Voice.*

**T**Hat this frightful Distemper is an involuntary *Contraction* of the *Muscles*, by which the Parts affected are determined to a constant and unmoveable Posture, whilst the *Mind* and *Senses* are intire, is very obvious, and that *Convulsive Motions*, or *Epileptick Fits* (for they are distinguished from a true *Convulsion*) are likewise owing to an involuntary *Contraction* of the Muscular Parts, but oftner accompany'd with a Failure of the *Mind* and *Senses*. But tho' both be ascribed to the same Cause, the difference between them is remarkable in this, that a *true Convulsion* is a continual and *uninterrupted* *Contraction* of the *Muscles*, and that *Convulsive Motions* are *alternate*, interrupted and invading at certain times, and *periodically* accompany'd with an Interception or Privation of all the *Senses* external and internal, a sudden falling down, with gnashing of Teeth, and concussion of some of the Parts, swollen Eyes, strangling in the Throat, and difficult Breathing, an involuntary Excretion of Filth and Urine, foaming at Mouth,



Mouth, at the end of the Paroxiſm, and a forgetfulneſs of every thing that happened.

Now as to the firſt of theſe; namely, the appearance of a *true Convulſion*, which only comes to be here conſidered; 'Tis plain, that when a greater than uſual quantity of *Spirits*, are involuntarily determined into this or that Muſcle (be the Cauſe what it will) it muſt needs be contracted and contained in this Poſture by the Power of the *Liquid*; becauſe, the *Will* is not in a Capacity to make the requiſite *Æquilibrium* by actuating the *Antagoniſt Muſcle*, and therefore the place affected muſt be perpetually immoveable and inflexible.

But to what this irregular Motion of the *Spirits*, and the Effects of it is to be aſcribed, ſeems to be not ſo plain, by reaſon of the different Accounts we have of it, occaſioned perhaps by the miſtaken Senſe of that remarkable *Text*, *Convulſio vel a repletionē ſit vel ab inanitione, ita vero & ſingultus* (a). For, *Galen* apprehending this to be meant with reſpect to the Nerves only, has probably given riſe to the different Opinions that are had concerning the immediate cauſe of *Convulſions*. Whereas there is nothing more certain than that *Hippocrates's* Senſe of this *Text*, implies a *Repletion* or *Emptineſs* and *draining* of the Sanguiferous, and other Veſſels of the Body, from which that of the Nerves, as well as other Conſequences of it, that is, all ſorts of *Convulſions*, naturally reſults. This is very plain from the infinite number of Obſervations which we owe to  
this

(a) Aph.  
39. § 6.

this *Great Man*, concerning this Diſtemper, he having with unwearied Patience and Diligence in tracing the Foot-ſteps of Nature, carryed them farther than any that went before him, or yet has come after. Neither was it unknown to him, that *Convulſions* were ſometimes cauſed by a *Stimulus* of the *Nerves*; but withal, as a Mediate and remote Cauſe only, *i. e.* an afflux of a greater than uſual Quantity of Animal Spirits into the Part affected, ſo that whatever the *Stimulus* be, by which a *Convulſion* is produc'd, it muſt imply and be reducible to *Repletion*.

Retaining then to the antient Account of *Convulſive* Diſtempers, as cauſed by an Universal *Repletion* or *Emptineſs*, and draining of the Veſſels, and conſequently thoſe of the *Nerves* and *Muſcles*, 'twere no hard Matter (if it were not beſides our purpoſe) to account for the various Sorts and *Appearances* of *Convulſions*, from the excellent Obſervations of the *Great Bellinus*. May it be allow'd only to obſerve, that, *Convulſions* muſt be the neceſſary and natural Effect and Produce of an exceſſive *Repletion* and *Emptineſs*, *Humidity* and *Dryneſs* of the Parts ſo affected.

Thus, for Inſtance, When the Body is drain'd by ſome exceſſive *Evacuation*, as *Blood-letting*, *Hæmorrhages*, *Purgative Medicines*, *Diarrheas*, *Dyſenteries*, and the like, the Veſſels thereupon become empty and drie, and their ſides fall together, and come nearer one to the other; ſo that the remain-

ing



ing part of the Liquids; eſpecially the Blood and Spirits ſeparated from it, muſt be altered and chang'd from their Natural State, by which the Nerves are ſhrunk, contracted and ſhorten'd ( however this Doctrine be rejected by the Learned *Borrellus*; (a) chiefly be-  
 cauſe, ſays he, the Nerves in a living Body have never been obſerved to be dried and withered, and that *Convulſions* cannot be aſcribed to *Repletion* of them, or an exceſſive Moisture and Humidity, becauſe 'tis their Natural Conſtitution ) and *Convulſions* brought upon the Part; eſpecially, when this dryneſs of the Nerves is accompanied with an unuſual Heat; for, then the *Spirits* are the more inflamed and active, and the *Convulſion* or *Contraction* the greater.

(a) Cap.  
xx. prop.  
212. par. 2.

But on the other hand, *Convulſions* are ſometimes owing to an unuſual *repletion* or *fulneſs* of the Sanguiferous and other Veſſels; ſo that their Liquids being ouz'd, or otherways inſinuated into the Interſtices of the Fibres which conſtitute the Nerves; theſe are forthwith rendred flabby and relax'd, ſhortned and contracted, by the ſtuffage of moiſt and watry Parts entring their little Cavities; probably after the ſame manner, that Cords or Strings of Muſical Inſtruments are affected by the inſinuating Particles of moiſt Air and rainy Weather. Thus the Fibrous and Nervous Parts, are equally contracted by too much *Humidity* as well as by exceſſive *Dryneſs*.

And

And reducible to this, are those *Convulſions* which are cauſed by groſs, viſcid, cold, and Phlegmatick Humors in the Blood; from which, no Spirits can be ſeparated, but ſuch as are ſluggiſh and unactive, and therefore readily ſtagnate or cling to the Nerves, by which, theſe are in a manner ſwelled and contracted, and muſt continue to be ſo, eſpecially when the finer Part of the Blood being rarified, expires, and the groſſer Parts together with groſs Viſcid and cold Humours, are detained in the Fibres. *Convulſions* that are owing to this *Cauſe*, and thoſe occaſioned by a *Laxity* of the *Fibres* after ſome time, terminate in *Palfies*.

Thus we have ſeen, after what manner *Convulſions* are ſometimes cauſed by a *Plethora*, and ſometimes by an *Emptineſs* of the Veſſels or Liquids contain'd in them. But, it yet remains to be obſerved, that there are ſome ſorts of this Diſtemper; which, tho' they ſeem to be rather owing to ſome other than the juſt mentioned *Cauſes*, are nevertheless reducible to the one or t'other. Such as are thoſe that are cauſed by a *hardneſs* and *thickneſs*, or *Compreſſion*, and unnatural *Conformation* of the *Fibres* and the like, by which theſe are rendred unfit for Muſcular Motion. And 'tis likewise to be obſerved, that, a *Convulſion* or *Contraction* of one *Muſcle*, is often cauſed by a *Relaxation* or *Palfie* in its *Antagoniſt*, become unapt to make a due *Equilibrium*; or, the affected Muſcle is ſo frequently contracted, that the *Vibration* is hardly perceptible, and there-



therefore ſeems to be continually immovable. Now, any one of the Muſcles may become *Paralytick*, by an obſtruction in its Nerves, and the *Animal Spirits* may be derived and determined towards the *Antagoniſt*, by which it muſt be continually *contracted* the quantity of the *Spirits*, being greater than is uſual.

Again, 'tis plain, that only ſuch *Convulſions* that are cauſed by a diſorder in the *Brain*, are accompanied with a failure of the *Mind* and *Senſes*. But when the Arteries of the *Brain* are preſſed upon or are obſtructed, the *Spirits* ſeparated from the Blood (if there be any Separation at all) and deriv'd into the Muſcles, are dull and unactive, and the *Convulſions* ariſing from this *Cauſe*, muſt be accompanied with the leſs Vivacity of the *Mind* and *Senſes*. This is obvious from the unuſual Poſture of our Legs, or any other Member, by which, the Channels of the Blood and Spirits are preſſed upon, and their *Liquids* obſtructed in their Motion. For, the parts forthwith become torpid and ſtupified, and unfit for Muſcular Motion.

And, *Convulſions* which come upon *Wounds*, *Contuſions*, *Inflamations*, a *Puncture* or cutting of the *Nerves*, and the like, are always accompanied with Pain, i. e. a *Stimulus*, which cauſeth a violent and plentiful *flux* of *Spirits* into the Nerves of the affected Part, and thereupon muſt be *contracted*, and a *Convulſion* occaſion'd, eſpecially, when theſe Diſtempers and Diſorders are likewise accompanied with an *Inflammati-*

on and Heat, by which, the *Spirits* are rendered the more fluxible, and their Channels exceſſively dry and Contracted. But ſuch *Convulſions* as are owing to a *Stimulus*, are not Continual ; neither are *Convulſive Motions* always produc'd by it, or only by ſharp and acrimonious Humours, but alſo by thoſe that are cold, torpid and viſcid, invading this or that Member *periodically*, without inducing a *failure* upon the *Mind* or *Senſes*, unleſs they have an immediate Connexion with the *Brain*.

This Account of *Convulſive Diſtempers* being (as was neceſſary) premis'd, the meaning and import of *Hippocrates* his Observations concerning them are the more fairly pointed at, and may be viewed under theſe two Heads; namely, ſuch *Convulſions*, as have been accounted *bad Signs*; and, 2dly, Such as are *Pernicious* and *Mortal*.

Thus, *Convulſions* are dangerous when they come upon,

Aph. 9. § 7. *Great Hæmorrhages of Blood.*

Aph. 1. § 5. *Immoderate Evacuations.*

Aph. 18. § 7. *The Iliac Paſſion.*

Aph. 2. § 5. *Immoderate Watching; and,*

Aph. 57. § 4. *Immoderate flowing of the Menſtrua.*

And *Pernicious* or *Mortal* when they come after,

Aph. 25. § 7. *Taking of Hellebore.*

Aph.



Aph. 10. § 7. *Immoderate Purgations by Medicines.*

Aph. 26. § 2. *The Inſiſtion of Wounds ; and,*

Aph. 66. § 4. } *Upon acute Fevers, but leſs*  
 & in Coac. } *dangerous to Children.*  
 Text. 269. }

Hence it is plain, that, *Convulſions* cauſed by *Emptineſs* of the Veſſels are more dangerous, than thoſe that proceed from a *Plethora* of *Humors*; eſpecially in *Fevers*, after ſome notable *Evacuations*. For, thoſe that are owing to *Repletion*, and happen in a State of Health, as they invade on a ſudden (by which they are known from the other) ſo likewiſe they are carried off, either upon the acceſſion of a *Fever* (a), or a (b) Aph. 70. § 5. *brisk*er Circulation and Motion of the *Blood*. And, Generally ſpeaking, *Convulſions* in *Children* proceed from this *Plethora* of *Humors* and *Crudities* in the *Stomach*.

Reducible to this of *Convulſions*, is that of *HICKOPS*, which is nothing but a *Convulſive Motion* of the *Stomach*, or an intense *Vomiting*, or *Semblance* of it, often happening to old *Mén* after large *Evacuations* by *Looſneſs*, or exceſſive *Vomiting*, &c. and therefore accounted among the moſt dangerous *Signs*, but *portends* no ſuch thing, when it comes upon *Surfeits*, exceſs in *Eating* and *Drinking*, or cauſed by ſharp and corrupted *Humours*. When this *Diſtemper* comes upon ſharp and continued *Fevers*, as it

(b) Aph. 3.  
§ 7.

it ſpeaks plenty of Malignant Humours, which irritate and *Stimulate* the Internal Coat of the Stomach : ſo likewise it is often followed by *Death*, as well as when it happens in *Dysenteries*. And it is too often *fatal*, when it comes after exceſſive Vomiting, and accompanied with a *redneſs* in the *Eyes* (b). For, it ſignifies a Stagnation of the Blood, or an Inflammation of the *Brain*, or part affected. All *Hickops* in Old Men are dangerous.

Sometimes they come upon a *Faundice*, and then the Stomach ſeems to be loaded and irritated with *Bile*, which abounds in the Neighbouring Parts, as well as all the Body over. But in this and the fore-mentioned Caſes, the preceding and concomitant *Signs* are to be obſerved, in forming juſt *Prognosticks* concerning this Diſtemper. For, *Mortal Hickops* are always accompanied with other *Appearances* and *Symptoms* equally Pernicious ; ſuch as cold Sweats, a *Coma* or Lithargy, loſs of Speech, and ſuch like already Mentioned.

Having mentioned the *Loſs* and *PRIVATION* of *SPEECH*, which every one knows to be a Mortal and Pernicious *Sign* ; It may not be amiſs to conſider, after what manner this happens, and what are the apparent and diſtinguiſhing Differences of the *Voice*, which ſometimes go before it. 'Tis plain, that the Subſtance of the *Brain*, is ſo very ſoft and tender, ſo nice and curious in its *Make* and *Fabrick*, that 'tis ſoon diſordered ; and by  
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any violent concuſſion of, or preſſure upon its Veſſels, *thoſe* of the *Nerves* whoſe *Extremities* are centered, complicated and twiſted in it, muſt be confounded and ſometimes relax'd, and the adjoining Parts, ſuch as are the *Tongue*, and other Organs of *Speech* and *Voice*, by reaſon of their Dependance and Continuity, diſabled from performing their Functions.

But this is not all, For, a right State and due Conſtitution of the *Lungs*, *Wind pipe* and *Throat*, and admiſſion of the *Air*, is no leſs neceſſary than that of the *Brain*, *Cheeks*, and *Lower Jaw*, &c. for an eaſy and natural Formation of *Words* and *Sounds*: and when one or more of either are wanting or defective, the *Voice* muſt neceſſarily be *viti-ated*, and different from that which is natural, or altogether *loſt* and *intercepted* Hence it is, that the *Voice* is ſometimes *Hoarſe*, *Squeaking*, *Sharp*, *Trembling*, *Low*, *Stammering* and *Slow*, &c. all which Differences deſerve to be carefully conſidered in every Diſtemper, eſpecially thoſe that are *Feveriſh* and *Acute*, becauſe they fairly point out to us the State and Condition of the Sick, as every Sagacious Phyſician well knoweth.

Thus, (to advert upon ſome of them) the *Voice* becomes *Hoarſe*, upon drying up of the Natural Moisture of the *Throat*, and adjacent Parts by a *Feveriſh Heat*. Or, it proceeds from viſcid and congeſted Matter, by which the *Surface* of thoſe Parts become rough and unequal; for, ſo it happens in

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the *Small-pox*, upon breaking forth of the Puſtles, and when one in this Diſtemper ſpeaks freely and naturally, 'tis a certain Sign, that there is no eruption of the Puſtles upon the Surface of the Throat. But this by the bye.

Sometimes one ſpeaks as if he were ſtrangled, and this always ſuppoſes a Contra-ction or Diminiſhing the Natural Capacity and Amplitude of the *Larynx* or *Wind pipe*; Or, that the *Air* is taken in and expelled with a greater than uſual *Impetus*. For, we obſerve this Sound of the Voice, when we endeavour to take in the *Air* ſuddenly, (for it reſembles *Snorting*, being cauſed by a tremulous Motion through the Noſe and Throat) and in a great quantity, for expelling the *Blood* ſtagnated in the *Heart* or *Lungs*, by reaſon of its *Lentor* and *Viſciditiy*, or whatever other Cauſe. For, when this *Lentor* is taken off, or the *Blood* is expelled the *Heart*, or deriv'd into the *Pulmonary Vein*, the *Reſpiration* forthwith becomes *easy*, and the Sound of the Voice more Natural.

Again, a *Sharp* and *Squeaking Voice*, is ſometimes cauſed by an Inflammation of the *Diaphragma*, which communicates its *Heat* to the *Lungs* by reaſon of their Vicinity, and thereupon their Membranes either become too much flagged and relax'd, or too dry, and conſequently more diſpoſed to *Vibrate* the *Air*, and expel it thro' the



the *Wind-pipe* and *Throat*, which likewise are supposed to be distended and rigid, and therefore the *Sound* and *Voice* is rendered the more *Sharp*. And,

Lastly, One becomes altogether *Speechless*, when the *Lungs* or those Places adjoining to the *Larynx*, are so much inflamed, that a liberal Passage for the *Air*, so necessary to moderate the *Voice*, is altogether obstructed. Or, when the Muscular Motion of the *Tongue*, *Cheeks*, *Throat*, and other *Organs* of *Speech* become defective, either by an obstruction of Animal Spirits, or want of them after a long continued Sickness; Or, a *Convulsion* and irreparable *Relaxation* of those Parts.

From what hath been said, Every one may readily conceive the *Danger* that attends a vitiated *Voice*, and the fatal Consequences of that which is altogether *Intercepted* and *Lost*; especially, when accompanied with other bad Symptoms. And, that the danger is less, when either of them happens upon an Excess of Joy, Fear, Suffocation in Hysterick Fits, Excessive Drinking, Worms, Disorders of the Stomach, Infliction of Wounds and such like.

But it highly deserves to be noted, that, one becomes *Speechless*, either by reason of an excessive Afflux of *Lymph* or *Saliva* into the Glands of the Mouth, by which the Fibres of the *Tongue* are swelled, relax'd,

and flagged and thereupon rendred unfit for Motion and Modulating the *Voice*, and the ſame Effect happens upon an Exceſſive *Heat*, by which the *Moifture* is dried up and conſumed, and the *Fibres* ſo much contracted, that one cannot ſpeak or manage his *Tongue*. And therefore the *Loſs* of *Speech*, is always to be conſider'd with reſpect to the other *Concomitant Symptoms* of the *Diſtemper*.

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C H A P.



## C H A P. XIII.

Of Prognosticks taken from the Appetite, Colour of the Face and Eyes, Cheeks and Tongue, and adjacent Parts.

Sometimes the *Appetite* is so keen, sharp and devouring, that, it can hardly be satiated : Thus, Teeming Women, and Maids in the Green Sickness, who are most-ly Subject to this Distemper, are greedy and ravenous after the most absurd things; as Earth, Clay, Lime, cold Cinders and the like. As those of the other Sex, are likewise sometimes affected with the *Fames canina*, *Pica* and *Malacia*. But, whether these Distempers be owing to bad Humours congested in the *Stomach*, or to a mutual *Contact* of its Sides, I shall not determine, but 'tis beyond doubt, that, the more the *Stomach* is emptied of that *Mucus* and Viscidity that's natural to it, the keenness of the *Appetite* is the greater. And, an Excessive Hunger, always supposes a Consumption of the natural Moisture of the Body and Liquid of the Nerves, both which, are owing to want of Blood, (by which our Bodies are repaired) or, when its Quantity is diminished by the Exercise of the *Mind*,

in which there is a vaſt expence of Spirits, and alſo of the *Body*, in Muſcular Motion. For, then there is a Conſumption both of *Blood* and *Spirits*.

But 'tis far otherwiſe in a State of *Sickneſs*, in which, tho' there be a great Conſumption of the Blood, and conſequently of Spirits generated or ſeparated from it; yet the Dejection of *Appetite* is ſometimes ſo great, that one Loaths, and has an averſion to that which was ſwallowed down with Pleaſure in time of *Health*. This may be juſtly attributed to an unhappy Conſtitution of the Blood, from which, bad Humors being ſeparated and derived into the Glandules and Cavity of the *Stomach*, the *Appetite* is thereby not only weakned, but alſo an *Uneaſineſs* and *Pain*, eſpecially, when theſe Humours fall upon its Coats and Membranes brought upon the *Mind*, and to avoid a greater, the averſion to Food becomes ſo great, that the ſight of it is nauſeous and uneaſy. And,

Whatever be the Diſtemper, in which the Blood cannot be repair'd and ſupplied, the Senſe of Hunger, which, in a State of *Health* naturally follows upon a Conſumption of the nutritious Juice and Spirits, becomes more and more the leſs, by how much one is weakned by the violence of his Diſeaſe, and as his Blood and Spirits are exhausted; becauſe, 'tis *Mediantibus illis*, that the Senſe of uneaſineſs in Hunger, is communicated to the *Mind*. And, the voracious and greedy Deſire after Food, which we obſerve after long *Sickneſs* and ſome time before ones  
*Death*,



*Death*, seems to be owing only to a random *Flux* of the few remaining Spirits into the *Stomach*, by which, its *Fibres* and *Tone* are a little restor'd, but their *Motion* in this *State*, being disorderly and irregular, they make no long stay there, and then the *Sense* of *Hunger* goes off, and the *Patient* dies upon his last Morsel.

Hence 'tis plain, that it must be a good *Sign*, if the *Appetite* of Sick People comes near to that which was usual in a *State* of *Health*; Especially in *Chronical Distempers*, and that a prostration of the *Appetite* in the same *Distempers* must be dangerous and pernicious (a) if accompanied with sincere *Stools*. (a) Aph. i. e. crude and unmixed *Humours* without 6. § 7.

*Mucus* or *Serum*. And, no less ominous is a *Dejection* of *Appetite* accompanied with a *Fever*, in long continued *Distempers* of the *Intestins*. And also, when an exquisite *Hunger* proceeds from immoderate *Purgations*, or, extream *Heat* in the *Stomach*, which suddenly grates and consumes the *Food* without nourishing the *Body*, as it happens to those who are *Lean* and *Hectick*. For, the *Chyle*, tho' prepar'd in the *Stomach*, is obstructed in the *Mesaraick* and *Lacteal Veins*; so that a small and inconsiderable *Portion* of it is derived into the *Mass* of *Blood*, the better part of it either remaining in the *Intestins*, or is thrown out by *Stool*. Which probably, may account for the continual *Looseness*, *Leanness*, and keen *Appetite* of *Hectick* People. But, if the *Appetite* that was weak and sunk comes to be very keen all on a sud-

sudden, without any *Crisis* or mitigation of the Disease, the Patient as just now was observed, dies soon after. For it denotes a *Disorder'd Brain*, an irregular Motion of the Spirits, and an irrecoverable Loss of the sensitive Faculty.

**DIFFICULTY of SWALLOWING**, is no less *fatal*, after a long continued Sickness and Weakness. For, in the action of *Swallowing*, the inclination of the Mind and the Muscular Motion of the *Tongue*, *Cheeks* and *Throat*, are equally necessary. But when the Muscles of neither of these can be actuated, 'tis plain, that there is a want and defect of *Animal Spirits*, or, that the *Muscles* are irreparably *relaxed*, and can never be restored.

**THIRST**, and the want of it, and what's *portended* by both, in whatever Distemper, is yet more explicable. For, the one is owing to a *Plethora*, and the other to an *Emptiness* of the Vessels. Only, sometimes it happens, that in the first, namely, a *Plethora* of the Vessels; the Humors are so viscous in the *Arteries*, by which, the Salivary Matter is derived into the Glandules of the Mouth, that no *Lymph* or Spittle can be separated from the Blood; and therefore those Parts by want of necessary Moisture become dry, and the Sense of it communicated to the Mind is *Thirst*. But, if the other Parts of the Body are not dried up after this manner



manner, but moisten'd by their *Lymph*, the *Thirst* is not said to be universal.

But *Thirst* is oftner the Effect of *Heat*, which attenuates and evaporates the natural Moisture or *Lymph*, empties the Vessels, and drains the Blood of that Matter which is converted into *Spittle*, and strain'd into the Glandules of the Mouth, which thereupon become intensely dry, and the Patient is thirsty : And if this Liquid of the Salivary Glands is not totally exhausted, the remaining part becomes viscous, and variously colour'd and compounded, according to the Degrees of *Heat* in the *Blood*, and proportion of *Lymph*. But this Effect of *Heat* and *Fervency* of the *Blood* in *Feverish* Distempers, is most remarkable upon the *Surface* of the *Tongue*, which receives the dry and hot Particles, which evaporate from the Cavities and *Surface* of the *Oesophagus* and *Aspera Arteria* ; and probably too by reason of the Continuity of Parts by the *Heat* that comes from the *Breast* and *Abdomen*. Upon this account, the *Tongue* must become dry and thirsty, especially upon its *Surface*, and its Fibres must be contracted, and by reason of their Weakness and Fineness, soon broke and pull'd asunder, and at last, chapt and furrow'd. But more of this below.

Thus, *Thirst* being sometimes owing to a *Lentor*, or gross Humors in the Blood, obstructing the Afflux of *Lymph* into the Glands of the Mouth, and sometimes to a consumption and exhausting of it by an intense *Heat* and *Fervency* in the Blood ; 'tis fairly accountable

countable, after what manner the *Thirſt* of thoſe in *Malignant Fevers* is ſometimes diſproportioned to the *Feveriſh Heat*, and why tho' the Blood be ſometimes intenſly hot and *ſeruent*, there is little or no *Thirſt*: For, in this laſt caſe, the Blood may be diſſolv'd, and its Conſtitution entirely alter'd (whilſt the *Heat* continues) and thus render'd leſs *perſpirable*: So that ſome Parts, eſpecially the Subſtance of the *Tongue*, may receive ſufficient Moiſture and Humidity from the *diſſolved Blood*, whilſt its *Surface* may appear to be *dry*, by reaſon of the hot Particles which it continually receives from the adjoining Parts; namely, the *Aſpera Arteria* and *Oeſophagus*. But, tho' the Blood be not diſſolv'd, and the *Tongue* is dry and parcht, not only in its *Surface*, but alſo throughout its Subſtance; yet, who knows not, that one in this Diſtemper may have no ſenſe of *Thirſt*, if the Nerves likewise be ſo much dried up and ſhrunk, or their Canals ſo much obſtructed by groſs and viſcous Humors, that the *Senſe* of it cannot be communicated to the *Mind*.

Hence 'tis obvious, that to have great *Thirſt* in *Fevers*, and Diſeaſes which come from *Heat* and *Inflamation*, is uſual and natural, becauſe *Heat* attenuates the *ſerous* part of the Blood, and evaporates the *Lymph* or Matter which is converted into *Spittle*, by which the *Glands* of the *Mouth*, *Throat* and *Tongue*, are moiſten'd. But, to want it in thoſe Diſtempers, muſt be a *dangerous* and *pernicious Sign*, either as 'tis owing to a *Diſſolution* of the *Blood*, or to a *Drieneſs* and *Contraction*



traction of the *Nerves*, or an Obſtruction in their Canals juſt now mentioned; or laſtly, to a Moiſtening of the *Tongue* by the humidity of the Brain, as was antiently believed. And no leſs *fatal* is it, when the *Thiſt* is ſo great, that nothing can allay it, and when one has an ardent deſire after odd and unaccuſtomed Liquors, and inconfiſtent with the State and Condition of the Sick, and nature of his Diſtemper; as Vinegar, Spirits of Wine, and ſuch like.

The *Colour* of the *F A C E*, upon the Invaſion, and throughout all the *Periods* of Diſeaſes, being ſo remarkable, ſo often and variously chang'd from that which is natural; ſometimes by degrees, and then all on a ſudden, ſometimes at the beginning, and ſometimes in the *Status* of the Diſtemper, and ſometimes when there is none at all, excepting that of the *Paſſions* of *Anger*, *Joy*, &c. it may not be amiſs to enquire into the productive Cauſe of ſo many various *Appearances*, and what they portend and prognotiſicate.

That the *high red Colour* of the *Face*, is cauſed by a *Plethora* and Fervency in the Blood, is evident: For the parts of the Blood being rarefied, its Channels muſt neceſſarily be enlarg'd, and the Capillary Arteries *dilated*, whence, ſome finer parts of the Blood are ſtrain'd or *ouz'd* into the Interſtices of the Cutaneous Fibres, by which the Skin of the *Face* is render'd more reddiſh than is uſual, and therefore is believ'd to *preſage* either an *Hemorrhage* at Noſe, or an Inflammation of the Brain, an approaching *Delirium* and

and Hemorrhoids, and ſometimes Convulſive Fits in Children.

This Colour, in *Malignant Fevers*, is obvious and uſual, by reaſon of the various and different State of the Blood in that Diſtemper: For the *Face* looks florid and lively, whilſt the *Blood* circulates freely through its Channels, and alſo the *Spirits* in the Nerves; but in a little time 'tis far otherwiſe, when both are interrupted, for then the ſame Perſon looks pale or livid; but nevertheless may again at the very approach of *Death* recover a brisk and gay Colour. For, by reaſon of a Defect in the *Spirits*, the groſſer part of the Blood ſtagnates in the Veſſels of the other Parts, whilſt that which is more fluxible and thin, is fluent enough in thoſe of the *Face*.

Again, in *Inflamations* of the *Lungs*, and other *Pulmonary* Diſtempers, the Colour of the *Face* is lively and roſy, becauſe the *Lungs* being inflam'd, and their Channels obſtructed, the Blood that ſhould circulate in them, muſt ſtagnate in the Branches of the *Vena Cava*, which are diſtributed to the *Face*, whilſt the thinner part of it is fluent in the *Arteries*; and therefore the Veins of the *Face* appear to be puſt up and roſy colour'd. And, that the Blood of thoſe in this Diſtemper, ſhould be very thin and fluxible, is very evident becauſe its groſſer Parts are intercepted and congeſted in the *Lungs*.

The yellow, and ſometimes blackiſh Colour of the *Face* and *Skin* in the *Jaundice*, cauſed by an Obſtruction of the *Cholidocus* or *Porus Biliarius*,



*Biliarius*, or Glands of the Liver, by glutinous and calculous Humors, intercepting the *Bile* in its *Flux* into the Intestins, is effectually taken off by salt, volatile and bitter Medicines, unless there be a hard *Tumor* or *Schirrus* in the Liver, which is not so easily dissolved. The *Colour* of the *Face* observed in those who have been bit by a mad Dog or Viper, and that which comes upon Anger, Hysterick Fits, long Watching, immoderate Purgations and Evacuations, Hunger, and the like, and what's portended by it, is too well known to be insisted on. Only,

The *white* and *pale Colour*, in whatever Distemper, may be observed to signify either want of Blood, or an Obstruction in its Circulation. Thus in Lethargick Distempers, *e.g.* not only the *Face* and *Eyes* are blouted and swell'd, but also the *Face* is *pale-colour'd*, by reason of gross and viscous Blood in the internal and external *Arteries* of the *Head*, which, notwithstanding the violence of its Motion in those Vessels, cannot be deriv'd into the *Veins*, and therefore must stagnate in the *Arteries*, and the *Face* must look *pale*, by reason of the viscous and whitish Humors mix'd with the stagnated Blood: But, when from a *pale*, the *Face* comes to be *livid* and *blackish-coloured*, there is no hope of Recovery. Of this *Colour* are the *Spots* that appear in the *Back*, *Loins*, and other *Parts* of the Body in acute and pestilential Fevers, and those that have died of *Poison*.

There is yet another notable Alteration in the *Face*, which is always *suspected*, *pernicious*

ous or mortal, eſpecially when it happens a few days after the Invaſion of ſome acute Diſtemper, without any apparent Reaſon; and this is a Compreſſion or Sharpneſs of the Noſe, with hollow and ſunk Eyes, a Stiffneſs and Rigidity of the Temples, Coldneſs in the Ears, Drineſs and Hardneſs of the Skin of the Face, and a greeniſh, livid or blackiſh Countenance or Colour. This is the (a) 2 Prog. *Facies Hippocratica* (a), and not unlike to it is the reſemblance of Friends and Relations, that ſome have obſerv'd in the Countenances of thoſe in a hopeleſs Condition.

The EYES which we have ſo often mention'd, in a State of Sickneſs are conſider'd with reſpect to their Magnitude, Situation, Colour, Motion, Viſion, and Splendour. This curious Organ appears to be Globular; but when 'tis diveſted of its Muſcles, it is oblong, and in ſome manner reſembles a Pyramid, having its *Baſis* without, and *Point* within. Its *Size* is various and different: The larger is eſteem'd the handſomer and more becoming, tho' more expoſ'd to Injuries from without and within, and not ſo ſharp ſighted as that of a leſſer *Size*. Its Soundneſs is known by its freſh and gay Colour, Fulneſs, Brightneſs and Eminency, in looking upon the Light without Uneaſineſs, in its Muſcular Motion, by lifting up and ſhutting the Eye-lids, and being without Excrements, Tears and Blearedneſs, Redneſs, Dulneſs and Diſtortion, &c. But the Eyes are not here conſider'd with reſpect to their natural Defects, or any foreign Influence, as  
hard



hard Drinking, violent Vomiting, and ſuch like external Cauſes ; but as influenc'd, chang'd, and alter'd from their natural State by the violence and ſharpneſs of Diſeaſes.

In the juſt mention'd Deſcription of *Facies Hippocratica*, the *Hollowneſs* of the *Eyes* is juſtly taken notice of, becauſe, of all the ſolid Parts, *theſe* are moſt liable to be extenuated, hollow and ſunk, being, that they conſiſt moſtly of Fat and Liquors, which are ſoon exhausted, conſum'd and flatten'd, making ſuch a *Vacuum* in their *Orbits*, that 'tis evident and conſpicuous, that it being thus with the *Eyes*, the Body muſt be in a conſumptive and dying State.

In ſome acute Diſeaſes, one of the *Eyes* appears bigger than the other, and condemn'd by *Hippocrates* as a mortal Sign (a) : Neither (a) Progn. had he a better opinion of involuntary Tears (b), (of which above) for ſuch muſt (b) Aph. proceed from the acuteness of the Diſeaſe, 52. § 4. by which the Texture of the Glandules is diſſolv'd, and not from any peculiar Affection of the *Eyes*, or Paſſion of the *Mind*.

Neither is it leſs dangerous, when the *White* of the *Eye* becomes ruddy-coloured (c), (c) Hipp. or over-run with livid and black Veins. in progn. Thus it happens in *Quinſies*, and ſuch like Diſtempers, by reaſon of the Confluence of the *Carotides* and *Jugular Veins*, both which being preſſed upon by the Inflammation, the Blood can have no flux into the *Brain*, nor return from it into the *Lungs*, and therefore muſt ſtagnate in the *Throat*, *Face*, and *Eyes* ; upon which they become ruddy, fix'd, and without

without Motion. And thus likewise are the *Eyes* affected in *Malignant Fevers*, in which the Parts of the Blood being unequal, the groſſer part being leſs fluxible, is detain'd in the *Capillary Arteries*, diſtributed to the *White* of the *Eye*.

The *rolling* and *vibrating* Motion of the *Eyes* have been obſerv'd by *Hipp.* in *Coac* to prognosticate an approaching *Delirium*. *Præcordiorum pulſus cum turbatione mentem emovet, idque præcipue ſi oculi frequenter move-*

\*In Progn. antur \*. For this Motion is owing to the  
pag. 38. *Impetus* and violent Motion of the Blood, and irregular Afflux of a greater than uſual Portion of Spirits into the *Muscles* of the *Eyes*, by the Preſſure of the *Arteries*. And when the Heat of the Blood is exceſſively great, the Nervous Liquid is irregular in all its Motions; and therefore the Parts into which it is deriv'd become *tremulous* or *convulſive*, and the Representation of *Species* made to the *Mind*, *confus'd* and *diſorder'd*.

Every body knows that 'tis an *omenous* and mortal Sign, when the *White* of the *Eye* is  
†Aph. 52. ſeen between the *Eyelids* †, if this manner  
§. 6. of ſleeping be not uſual, or owing to immoderate Evacuations, or Worms, Children troubled with them being ſometimes obſerv'd to ſleep with their *Eyes* half open: For this *Appearance* can be aſcrib'd to nothing elſe than to a defect of the *Nervous Liquid*, whereby the circular *Muscles* of the *Eyes* are rendred ſo ſoft, relax'd and flabby, that they cannot be duly contracted, actuated, or ſhut. But the *Distortion* of the *Eyes*, ſuch  
as



as ſometimes is obſerv'd in *Epileptick Fits*, is not attended with ſuch *fatal* Conſequences in that, as in other acute Diſtempers, in which, ſuch *Convulſions* of the *Eyes* are juſtly ſuſpected and pernicious; and when they come to be fix'd and immoveable, there is none but knows, that Death is at hand.

As to the *TONGUE*, 'tis plain and evident, that the ſureſt Signs of the State of the Blood, the great Spring of the *Machine*, are taken from it, being a Collection of an infinite number of Fibres and Glandules, thro' which the morbiſick redundant Parts are convey'd, without ſuffering any conſiderable alteration by the way, as they do in other *Emundories*. And the Divine *Hippocrates* having obſerv'd, that the *Tongue*, by its different *Colours*, points out to us the various and predominant Humors of the Body, it deſerves to be carefully conſidered in all its Affections and Alterations, not only in the *Prognosticks*, but alſo in the *Diagnosticks* of Diſeaſes, eſpecially conſidering, that other Signs may frequently deceive us, whereas this ſeldom does.

In a State of Health, the *Tongue* is well known to be *redish colour'd*, ſoft, and proportioned, fit for taſting and ſpeaking; but upon the Invaſion of Diſeaſes, it ſuffers a great many Changes and Alterations: For, being an open, ſoft and glandulous Subſtance, it is the more capable of receiving the Impreſſions and Colour of the more groſs Particles, or ſerous Humors and Vapours, or to be dried up and harden'd by the Conſumption

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of

of its natural Moisture and Humidity. So that 'tis readily conceiveable, that it must be a *good Sign* in whatever Distemper, when the *Tongue* is likest to that which we have represented it to be in a State of Health; and that the more it is different from it, so much greater must the *Danger* be.

But the most remarkable *Appearances* of the *Tongue* are its Colour and Driness, Softness, Roughness and Inequality, and that sometimes 'tis covered with hot small Tumors, and sometimes with those that are cold; that 'tis sometimes affected with immoderate Thirst, and sometimes with none at all; that sometimes 'tis so much swell'd and enlarg'd, that it cannot be contained in the Mouth, so that many have been suffocated by it: And sometimes 'tis extreamly diminished by intense Heat and Inflammation, which is no less dangerous. All which various and different Affections of the *Tongue*, being justly ascrib'd to a Fervency in the Blood, and Consumption of its *Serum*, or to an over-great plenty of flegmatick and watery Humors; the *Prognosticks* taken from it will be plain and obvious. Thus,

The *Tongue* for most part is dry in all *Feverish* Distempers; and as the Feverish Heat and Inflammation is increased, so is its Driness, until at last it comes to be withered, hard, and unequal, cleft, ulcerated and black, &c. For in every Distemper accompanied with a Fervency in the Blood, the *Lymph* and Humidity of the Parts must necessarily be exhausted, especially that of the *Tongue*, and  
the



the Fibres every where distributed through it, render'd rigid and contracted. Hence is its *Roughness*, as its *blackish Colour* is probably owing to the *Blood*, which wanting a due proportion of *Serum*, is the more disposed to stagnate under its *Surface*; or, the thinner part of the Blood being evaporated, its grosser Parts thereupon become less fluxible, earthy and dry, representing a *darkish Colour*.

For the same reason it comes to pass, that the *Tongue* is *chast* and *cleft*: For it's *Surface* consisting of a Bundle of Fibres variously affected, partly by the defect of *Lymph*, and partly by hot Vapours arising from the Breast and *Abdomen*, comes at last to be so much withered, dried and contracted, that they must be broken and cleft asunder.

Now as this State of the *Tongue* fairly indicates that of the *Blood*, 'tis readily conceivable how *dangerous* a *Sign* it must be, when one in this condition has little or no *Thirst*: For as *Thirst*, as was but now observ'd, may be owing to want of *Saliva* and Moisture in the *Tongue* and *Throat*, dried up and exhausted by the Fervency of the Blood, or to viscous and gross Humors obstructing its Afflux into the Salivary Glands; so when the Heat of the Blood is intensely great, and the *Tongue* is dry and chast, without any Sense of *Thirst*, the most probable Cause for this *Appearance*, must be ascribed to the Dissolution of the *Texture* of the Blood, by which, the Parts in some measure may be moistened, while the *Surface* of the *Tongue* is harden'd and dry, by reason of the Heat

and Vapours which arise from the Breast, *Aspera Arteria*, and *Oesophagus*: Or, the Nerves may be so much dried and contracted, that the Sense of *Thirst* cannot be communicated by them to the Mind. Now, whether this or that be the productive Cause of want of *Thirst*, while the Tongue is parcht, dry, and burnt up, the case is deplorable: Or if *Thirst* be taken off (as some will have it) by a Distillation of some serous Humor from the Head, or much sleeping, in which cases 'tis observable, that the Tongue is not equally moistened in all its Parts; yet, when want of *Thirst* in a dry and black Tongue, is not owing to either of these (as probably it is not) a *Delirium* and Death is not far off.

Neither is the *Heat* and *Roughness* of the Tongue, either in the beginning or progress of the Disease, more pernicious and mortal than is its *coldness*; for *Death* follows soon after. This Observation, which *Baglivius* tells us was communicated to *Riverius* by *Pecquetus*, was well known to the Antients, and deserves to be carefully adverted to in all inflammatory Distempers, as well as in those whose Bodies have been much ulcerated or extenuated. But this *coldness* of the Tongue sometimes happens in *Diarrheas*, without any remarkable coldness in the extream Parts, and those who have been afflicted with that Disease, have nevertheless been observ'd to live several Days in that State.

From what hath been said, 'tis I think readily accountable, after what manner the Tongue is so often and variously chang'd and alter'd



alter'd from its natural State and Colour, beſides its Affections already mentioned, to a *Citron*, *yellowiſh*, or any other Colour, if we advert to the Vapours that ariſe from the Stomach, the Effects of Spittle, and bilious Particles variously mixed with thoſe of the *Air*. And, why in *Leithargick Diſtempers*, the *Tongue* is *ſoft* and *white*, if we conſider, that it is ſoak'd and loaded with plenty of cold and watery Humors, and ſometimes ſo thick, viſcous and clammy, that they bring a Film upon its *Surface*, conſiſting as 'twere of innumerable ſmall Bubbles, like white Froath, as every one knows. And laſtly, why the *Tongues* of thoſe in a *Quinſy* are ſometimes *livid* and *black*, and ſometimes turned inward and *diſtorted*: For the firſt of theſe proceed from ſtagnated and obſtructed Blood in the Veſſels of the *Throat*, and the laſt, namely, the *Diſtortion* and Bending of the *Tongue*, from a *Convulſion* of its *Muscles* in this or t'other ſide, or a *Relaxation* of their *Antagoniſts*, by an Obſtruction in their Nerves and Arteries.

The *THROAT*, by reaſon of its Vicinity to the *Tongue*, muſt needs be equally affected with it, eſpecially in acute Diſtempers, and therefore requires the Phyſician's particular care and regard: For when it comes to be *ulcerated*, it as well tells us the ſharpneſs and vehemence of the *Fever*, as when the *Tongue* is *black* and *dry*, both being equally dangerous, eſpecially when accompany'd with other ill Signs.

## C H A P. XIV.

## Of Prognosticks taken from Horrors or Shivering, Tremors and Palpitations.

**A**S *Horrors* and *Rigors* are distinguished from one another, only *secundum majus & minus*, so both are known to be a convulsive Motion, or sudden and involuntary Concussion of the whole Body; as *Tremors* are that of a particular Part: And that those are sometimes slow and quick, sometimes weak, and sometimes more violent, happening to us in a State of *Health*, as well as in *Sickness*, upon the Passions of *Fear*, *Anger* and *Love*, entering into *hot* or *cold* Baths, and upon the Representation of things to the *Mind*, that partake neither of *Heat* or *Cold*, such as are ungrateful Sounds, tasting of Stiptick Liquors, eating unripe Fruit, after voiding of *Urine*, and a thousand such like cases, whilst the *Blood* is warm and brisk in its Motion, as well as in the *cold Fits* of *Intermitting Fevers*.

But these surprizing *Phænomena* have hitherto been unaccountable, and justly reckon'd amongst those which are yet beyond Human reach. And no less unsatisfying are the *Theories* we have concerning *Horrors* or *Shiverings*, which happen upon the Invasion of  
most



moſt *Feveriſh* Diſtempers, and the regular *Periods* of thoſe that are *intermitting*. For, tho' the *Appearances* of this Diſtemper be expoſ'd to our Senſes, and we know them by dire Experience; yet their immediate Cauſe, and the *Mechanical* account of their Nature, tho' inquir'd into with the utmoſt diligence, by the moſt ingenious of the Medical Faculty in all Ages, remains yet to be a *Problem*.

Only it ſeems to be plain and evident, according to the Great *Bellinus*, that the Senſe of *Cold*, and the *Shivering* that follows thereupon, muſt be owing to a *Lentor* of the Blood and groſs Humors impacted in the Capillary Arteries, obſtructing the *Motion* and *Velocity* of the Blood, the neceſſary and eſſential Cauſe of *Heat*. For, whereſoever there is not a due Motion of the Blood and Attrition of its Parts, there can be no *Heat*, or where its *Velocity* is leaſt, there its *Heat* muſt be the leſs. And ſeeing in every *Section* of the Arteries, the *Velocity* of the Blood is diminiſhed according to their diſtance from the Heart, its Motion in the Capillary Arteries of the extream Parts, eſpecially when loaded with Lent and viſcous Humors, muſt be very inconfiderable. Again, when the Blood and heterogeneous Humors mix'd with it, ſtagnate as 'twere in thoſe ſmaller Channels all the Body over; the Circulation muſt be more flow than uſual, and at every *Contraction* of the *Heart*, an inconfiderable Portion of Blood is ſqueez'd into the greater Arteries, and the *Impetus* of the *Heart*, by a defect and want of Spirits, ſeparated only from

from viscous Blood, must be considerably weaken'd.

For these Reasons it comes to pass, that the Attrition of the Parts of the Blood must be very little, and consequently the *Heat* diminish'd, *i. e.* a stimulating and pricking Sense of *Cold* is excited over all the Body, especially when the Humors are so gross and viscous, that the *Flux* of the Spirits into the Nerves and Muscles is obstructed, or that their Proportion is not equal to ballance those which have *Antagonists*: For then the one must be *contracted*, and the other *relax'd*, *i. e.* the Motion of the Spirits is irregular, and one in this case must fall a *trembling* and *shivering*, and undergo an universal Concussion in all the Parts of his Body. And for the same Reasons his *Pulse* becomes *weak*, *low* and *slow*, and sometimes *quick* and *unequal*; and by degrees, the Arteries, by reason of the *Cold*, are so much contracted and sunk, and the *Impetus* and *Velocity* of the Blood so much diminish'd, that the *Pulse* at last comes to be almost *imperceptible*.

But this Scene is quickly chang'd, when the warmer Parts of the Blood intangled with the viscous Humors, are disengag'd by the Power and Force of Nature; and when the Fibres which were over-stretch'd and distracted by the Impulse and Pressure of *Blood*, recover their former and natural State (for they always have some *Elasticity* and *Nisus*, unless they be totally contracted and relax'd) upon which the *Texture* of the Humors is dissolv'd, and their Parts separated from one another, and render'd



der'd more fluxible to be deriv'd with the Blood into the Veins with a greater than usual Motion and *Heat*, its Moles and quantity being augmented, the Animal Spirits disengag'd, and the Sense of a burning Fervency felt in the smaller Arteries adjoining to the Heart, and then diffus'd to the extream Parts; And tho' the time that's requisite for the dissolution of the Humors, by reason of their greater or lesser Viscidity, and Communication of the *Heat* to the extream Parts, be uncertain and undetermin'd ; for as yet *Heat* and *Cold* are alternative ; yet, at last the viscous Humors come to be fluxible with the rarefied Blood, its Circulation is advanc'd, Perspiration promoted, and the *Heat* continual, exquisite, and augmented, until it hath diffus'd it self, not only into the Capillary Arteries, but also into their greater Channels, and those of the Veins. But,

After many Contractions of the Heart, the rarefied Blood comes to be diminished in its Moles by *Perspiration*, and the exquisite *Heat* by degrees is render'd more gentle and remiss, according to the degrees of the Viscidity of the Humors, by which the *Duration* both of the *hot* and *cold* Fits are determined. And, as in the *cold* Fit, the *Pulse* was *weak*, *low*, and *slow*, sometimes *quick*, and *unequal*, and sometimes almost insensible ; now, the Blood being render'd more fluxible, hot, rarefied and fervent, the *Pulse* becomes *strong*, *brandishing* and *quick*, until the viscous Humors circulating with the Blood be again deriv'd into the Capillary Arteries, by which

a new *Paroxysm* of *Cold*, and then of *Heat*, accompany'd with the juſt mentioned *Circumſtances*, and after the ſame manner is commenc'd and accompliſhed in the ſame *Order* and *Time*, until after five, fix, or more ſuch *Paroxysms*, the *Lentor* of the *Blood* be totally taken off, or alter'd and chang'd in its quantity or quality; which muſt needs be the effect of *Perspiration*, *Rarefaction* of the *Parts* of the *Humors*, and their *Circulation* through the *Lungs*, whoſe *Structure* ſeems to be adapted and contriv'd for this purpoſe.

But the moſt ſurprizing *Phænomenon* of this *Diſtemper* is the regular *Return* of the *Paroxysms*, ſo nicely at certain and determinated *Periods*, *Hours*, and almoſt *Minutes*; as if the *Time* were meaſured by the exacteſt *Pendulum* or *Dial*; which being ingeniouſly accounted for by the *Great Bellinus* and *Borellus*, in purſuance of our purpoſe, I proceed to obſerve, that

As *Horrors* or *Shivering* uſher in moſt part of acute *Difeaſes*, eſpecially *Fevers* of all kinds, continual or intermitting, the *Meaſles*, *Rheumatifms*, *Eriſipelatoſe Fevers*, *Quinſies*, *Pleurifies*, *Scarlet Fevers*, the *Bloody Flux* or *Dyſenteries*, the *Small Pox*, and others, the *Iſſue* and *Event* whereof cannot be eaſily prognofſticated by the manner of their firſt *Invaſion*; and ſuppoſing the *Lentor* of the *Blood*, the productive *Cauſe* of thoſe *Diſtempers*, to be ſo great, that it cannot be deriv'd from the *Arteries* into the *Veins*, or ſo *viſcous*, that its *Parts* cannot be diſſolv'd, but obſtinately clung to the *Surfaces* of their *Channels*;



Channels; an univerſal and mortal *Coldneſs* would quickly enſue, the Blood could not be deriv'd into the Muſcles, but muſt ſtagnate in the Brain, and there could be no Separation of Animal Spirits, but an irreparable Privation of the Senſes, external and internal, *i. e.* inevitable and certain Death.

Hence it is, that *Agues* or *Intermitting Fevers* are more dangerous in the *cold* than the *hot* Fit; and if the *Lentor* or viſcous Humors are derivable into the Veins, and ſucceeded by a burning and intolerable *Heat*, the Blood muſt be exhausted, and the Spirits conſum'd; or, ſuppoſing the *Heat* to be gentle and moderate, and happening to one whoſe Strength is already much waſted by the violence of the *cold* Fit, the Danger however is not ſo great as ſome time after, namely, when the few remaining Spirits are totally ſpent and exhausted.

But after all, the fatal Conſequences of *Shiverings* in *intermitting Fevers* are oftner to be aſcribed to the Miſmanagement of the Patients, and abuſe of *Medicines*, than to the Genius of the Diſeaſe. 'Tis true, in former Ages, this Diſtemper was long and afflicting: 'tis the Happineſs of *this* to have found a ſafe as well as certain Remedy for the Cure of it, namely, the *Peruvian Bark*, which deſerves the firſt place among all the *Medicines* yet known; not only for its excellent Virtue in this, but alſo in the Diſtempers of the *Womb* and Stomach, and many others, when miniſtered by the hand of a prudent and ſkilful *Physician*. And,

Tho'

Tho' the uſe of it by ſome is *diſcontinued*, probably to give reputation and credit to their *Arcanums*, of which the diſguiſed *Cortex* is the *Baſis*, and falſely charged with all the uneaſy Effects of the Diſtemper, which, if there be any, ſhould rather be aſcribed to an undue Adminiſtration of it. And others reckon, becauſe it quells the Inſults of this Diſeaſe, as it were by an occult Quality, and not by ſenſible Evacuation, that the Matter cauſing this Diſeaſe, and ſhould have been thrown out, is ſhut up by its aſtringent Virtue; never conſidering, that the *Perspiration* and *Sweats* which happen at the end of the *Fit*, have carry'd off the *Febrile* Matter congeſted in the intermitting Days; and that the Reliſts of the Diſtemper only remain to be ripen'd for another, which by the *Bark* is prevented. And tho' it be commonly ſaid, and perhaps juſtly too, that *Agues* are taken off by its *aſtringent Virtue*, yet we know no other *Aſtringents* indued with the like Virtue. Nay, it cures ſome, who after taking it, go to Stool as if they had taken ſome purging Potion. But this by the by.

*Agues* that come in the Spring are ſeldom long laſting, ſo that the eldeſt Men, or any weak Perſon, run no great riſque by them, unleſs they be miſmanaged by unſeaſonable bleeding or purging. But *Quartans* are more dangerous and obſtinate, and often kill old People, unleſs they have had it before.

*Hippocrates* has obſerv'd to us, that the *Nubecula nigra* appearing in intermitting Fevers, ſignifies and imports, that the *Periods* of



of the cold *Fits* or *Horrors* will be uncertain; and without any order : And that Membranous Urine ſuppreſſed with *Horrors*, denotes an approaching *Convulſion*. Blackiſh *Eneo-remata* tells us indeed, that the groſs Humors are imperfectly concocted, and being the productive Cauſe of *Shiverings*, the time when they ſhall be totally concocted cannot be certainly determined : So that ſuch Urine may probably *preſage* their Invaſion to be very uncertain : And that a Suppreſſion of Urine with *Horrors* and *Shivering*, is nothing elſe than a Contraction of the whole Body, or that of the circular Muſcle of the Neck of the Bladder, *i. e.* a *Convulſion* of it. And membranous Urine, ſo called, being nothing but viſcid Humors, argues plenty of them to be lodg'd in the Blood, rendering it ſharp and acrimonious, firſt exciting *Horrors* and *Shivering*, and then *Convulſions*, or a violent Contraction of the Muſcles.

It likewise deſerves to be obſerv'd with this *Great Man*, that, little Sweats and frequent *Shivering*, ſignify an *Empyema* or *Impoſthume* (a). For the internal Parts being ſtimulated and irritated by the Acrimony of the Humors occasions the *Horrors*; and *Weakneſs*, the little Sweats. He likewise had a favourable Opinion of ſuch *Horrors* that happen'd upon continual Fevers on a *Critical Day*, *i. e.* when a fortuitous change happen'd to the Diſeaſe accompany'd with Signs of a preceding Concoction and following Evacuations; as copious Sweats, Vomiting, Dejections or inſenſible Perſpiration (b). But, (b) Aph. this 58. §. 4.

(a) Hipp.  
10. Coac. 1.

this *Aphorism* seems to have respect to some kind of *Fever* peculiar to the *Grecians*, or Inhabitants of those hotter Countries, according to the Learned Doctor *Lifter's* Remark upon it. But,

'Tis more plain, that *Shivering*, succeeded by little or no *Heat*, must, as was formerly observ'd, be accompany'd with very bad Consequences: For it signifies great plenty of gross and obstinate Humors impacted in the Capillary Arteries, an Obstruction of the Glandules, and an insuperable *Lentor* of the Blood. And if a *Coma* happens upon *Horrors* on a *Critical Day*, or invades without being accompany'd with laudible Evacuati-  
 ons, especially in *continual Fevers*, and when the Strength of the Patient is weaken'd and spent; Death is inevitable (a). 'Tis likewise obvious and plain, how *omenous* it must be, when *Horrors* come frequently, not only in the beginning, but also in the progress of *acute Fevers*, and those called *malignant*, without any order or determin'd time, and often in the space of one day; this being a certain Sign of an Inequality in the Blood, *i. e.* that 'tis partly viscous, and partly too liquid, thin and dissolv'd; so that when that which is viscous is impacted in the *Arteries*, there can be no regular *Circulation* or *Heat*, but instead of it, *Cold*, *Horrors*, and *Shivering*.

Lastly, every one knows how dangerous it is to be taken with *Horrors* after *Sweating* (b). For, as we have seen, those *Sweats* that do not mitigate the Disease must be unprofitable and bad; so they must necessarily be more dange-

(a) Aph.  
46. §. 4.

(b) Aph. 4.  
§. 7.



dangerous, when succeeded by *Cold* and *Shivering*: For it tells us, that the more refin'd *Serum* only, like that evacuated by insensible *Perpiration*, has been filtrated through the cutaneous Glands, whilst the more viscous Humors have been lodg'd in them, or retain'd in the Blood. Add to this, that frequent *Horrors* in the *Loins*, with a succeeding *Heat*, presages a great *Suppression* of *Urine*, and thereafter to *sweat* has been observ'd to be most dangerous (a). But now shortly as to *Tremors* and *Palpitations*. (a) 1 Coac. Aph. 8.

A *VOLUNTARY TREMOR* is nothing but a successive and frequent agitation to opposite Parts, as in shaking of the Hand, the *Antagonist* Muscles are successively and quickly contracted: But 'tis an *involuntary Tremor* that now falls under consideration, namely, such as are daily observable in those who are extreamly extenuated by Want, Old Age, Sickness, hard Labour, and the like; and therefore are unable to sustain any tolerable Weight without *Trembling* and *Shaking*. Now 'tis plain that this cannot be justly ascribed to any other Cause than to a want and defect of the Nervous and Spirituous Juice, which should be communicated by the Nerves: For this *Tremor* in some cases is quickly taken off, and the Weakness repair'd on a sudden by Food, spirituous Liquors and Cordials, so that one is enabled to exert a greater Power than formerly he was able to do, the *Coagulum* brought upon the Spirits being taken off, and the Orifices of the Nervous Tubes and Passages deobstructed.

This

This Diſtemper neither depends upon, or can be reſtrained at our will and pleaſure, notwithstanding our moſt earneſt Endeavours. Thus in *Tremors* of the *Head*, which in *Apoplexies*, *Lethargies*, and ſuch like Diſeaſes, ſeem to be owing to an unuſual Weight, or compreſſive Faculty, not to mention the more immediate Cauſes, we endeavour as much as we can to keep our *Head* ſtreight and upright, and therefore we contract the *Muſculos Rectores*; but theſe being *relaxed* through a defect and want of Spirits, the *Head* falls down again, and is ſucceſſively liſted up. This ſucceſſive Motion of *Contraction* and *Relaxation* of the Muſcles, is that we call a *Tremor* of the *Head*, which likewise happen to other Parts deſtitute of a proper Support, ſuch as are the Hands and Arms, &c. And the *Tremors* and *Concuſſions* of the Body in time of *Sleep*, is owing to an uncertain, diſordered and unequal *Flux* of the Spirits into this or that Muſcle.

But of all *Tremors*, thoſe in *Paralytick* Diſtempers deſerve the greateſt conſideration, whether they be owing to a *Privation* of *Senſe* or *Motion*, or both, proceeding from too great Humidity or Drineſs of the Parts, Cold, Heat or Compreſſion, &c. and affecting the Nerves either *idiopathically* or *ſympathically*. For, when the *Tremor* is chang'd into an univerſal *Concuſſion* and *Succuſſion* of the Body, the Diſtemper is irreparable and mortal; becauſe in this caſe, all the Parts of the Nerves, the Brain, Arteries, Fibres and Spinal Marrow, are expoſ'd to be pulled  
aſunder,



afunder Diſſolv'd, Relax'd and Gangren'd. But, a *Tremor* coming upon this Diſtemper, is one of the beſt Signs of Recovery. For, as in coming before the *Palfy*, it ſignified an obſtruction of the *Orifices* of the Nerves, and beginning of the *Palfy*: So likewise when it ſucceeds or comes after it, it *Preſages* a happy Recovery; eſpecially, when accompanied with *Heat* in the parts affected, for in this Caſe, the Nerves are not totally obſtructed.

**PALPITATIONS** of the **HEART** come under the ſame Rules of Conſideration with that of *Tremors*: Tho' this Diſtemper be variously defined, and by ſome diſtinguiſhed from *Tremors*, as others will have it to be nothing elſe. Yet, 'tis as plain as certain, that it muſt be a violent concuſſive Motion of the *Heart*, obvious to our Senſes, and accompanied with an Alteration of the *Pulſe*: Becauſe, the *Pulſe* muſt always agree with the Motions and *Contractions* of the *Heart*. For which Reaſon, *Palpitations* of it cannot be a *Tremor*: Chiefly, becauſe as was formerly obſerved, the *Pulſe* may be *ſlow*, whiſt the *Contractions* and Motions of the *Heart* are moſt frequent and quick; namely, when the quantity and ſharpneſs of the Humors is ſo great, that they influence the *Fibres* of the *Heart*, before the Blood is derived into its *Auricles*, or has ſufficiently filled them: And therefore this violent *Concuſſion* or *Palpitation* of the *Heart*, ſeems rather to be owing to a *Stimulus* of it, or ſome other

other cauſe accumulating or ſharpening the Spirits, and inflaming the Blood, or that it proceeds from the Cauſes above mentioned, in accounting for an *intermitting Pulse*.

But be it as it will, the *Syſtole* and *Diaſtole* of the *Heart* in its *Palpitations*, has ſometimes been ſo much diſordered, and the Concuffion ſo great and violent, that, as *Fernelius* has obſerved (a) it has broke the Ribs, diſjointed the Bones of the Breſt, and dilated the aſcending *Trunk* of the *Aorta*, to the bigneſs of ones Fiſt, whereby the *Pulse* has been made moſt *Perceptible*, which, has given occaſion, at leaſt to a Conjecture, that, *Palpitations* for moſt part if not altogether, proceed from ſome Impediment about the *Heart*. Eſpecially, after it has been frequently obſerved in diſſecting the Corps of thoſe who die of this Illneſs, that Polypus's, Anuriſma's, Oſſification, great clots of Blood, Tartarous Matter, Worms, Tumors, Stones, and ſuch like, have been found in the *Heart*, or neighbouring Parts. In which Caſes, the Patients have been affected, not by *Intervals*, but for moſt part *continually*. But, if they are produc'd by Acrimony and irritation of a Fluid Matter, Vapor or *Flatus*, as the Antients term'd it, they affect the Patient by *Intervals*, and the *Face* retains its natural Colour.

But, whatever be the Nature of *Palpitations*, whether *Idiopathical* or *Sympathetical*, from whatever Cauſe, or in whatever Diſeaſe *Acute* or *Chronical*, they are always Suſpected and Dangerous, becauſe they of-



ten terminate in *Syncopes* and fainting Fits, to which, if one is often Subject, without a manifest Cause, at last may be taken off by a sudden Death (a). And, it hath been observed that they are seldom long liv'd who are obnoxious to them; especially, if they happen very early, and in the Flower of ones Age, or caused by a *Tumor*, or Swelling in the Heart. For, in this case, *Palpitations* are incurable: But, those which are commonly a Symptom of *Hysterick Fits*, go off with the cure of that Distemper.

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## C H A P. XV.

Of Prognosticks *taken from* Impostumes, Buboës and Carbuncles.

ONE of the great Effects of the *Circulation* and impetuous Motion of the *Blood*, is to purge it self, and to throw off its *Heterogeneous* and *Foreign* Particles, by the common Emunctories, and ways of Excretion above-mentioned. But some Humors are so Viscous and Tenacious, that they are not easily separated or attenuated, to be cast out, either by *Urine*, *Sweat*, or other ways, and therefore, are either lodg'd in the *Blood*, or if separated from it, reach no further than the cutaneous Glands, where they are form'd into *Abscesses*, *Imposthumes*, *Spots*, *Pustles*, &c.

That these *Appearances* have their rise from an obstruction in the *Circulation* and course of the Humors in their Channels; especially, in the *Capillary Vessels*, is plain and readily conceivable. And that when this happens only in the *Blood*, it occasions *Inflammations*, *Contusions*, *St. Anthony's Fire* or *Blights*, and the like: As an obstruction of the *Lymph*, gives rise to general and particular *Dropsies*, &c. When the morbidick Matter is congealed by degrees, it causeth *Abscesses* and *Critical Tumors*, which are owing  
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to groſs Particles or febrile Matter, which cannot be eaſily attenuated by the *Impetus* of the circulating Blood, but is readily congeſted obſtructed and embarreſſed; whiſt the Blood and *Lymph* continue their courſe.

And, 'tis no leſs plain, that this Obſtruction in the *Circulation* of the *Blood* and *Humors*, is partly occaſion'd by the ſtraitneſs and narrowneſs of the *Tubes* and *Veſſels*; Eſpecially, thoſe that are *Capillary*, thro' which the *Humors* cannot paſs by reaſon of their groſs and viſcous Parts; Or, the Mouths of the *Veſſels* are ſtraitned by *Compreſſion*, which neceſſarily obſtructs the mucilaginous Matter, thickned by *Stagnation* or ſome powerful acid. Or, Laſtly, this Obſtruction may be owing to a *contraction* of the *Fibres*. Now the Viſciduity of *Humors* being owing to crude and indigeſted *Chyle*, not perfectly attenuated and refined, neither in the *Stomach*, *Arteries*, *Lungs*, or by following *Concoctions*, are eaſily united, and congeſted; and tho' they may be ſeparated from the greater Channels, by the *impetus* of the *Circulation*, and derived into the *Pores* of *Excretion*, yet they go no further, but terminate in *Critical Abſceſſes*.

For, when groſs and lent *Humors* Ferment (to retain that known Word) in any place of the Body, they muſt neceſſarily become the more fluxible, and diſpos'd to be ouz'd upon the *Skin*, which, likewise may happen without *Fermentation*; namely, when ſome of the more refined and liquid Parts, if there be any ſuch, are ouz'd and derived into the

Fibres of the *Skin*; or between the *Skin* and *ſcarf Skin*, whoſe *Texture* is adapted to admit and perſpire the more refined and liquid Matter, whilſt that which is more ſolid, groſs and fix'd are retained and ſtagnate in it. And, if its quantity is but ſmall and inconfiderable, a *Tumor* is not forthwith raiſed, but inſtead of it, *Spots* and *Exanthemata*; eſpecially, if the Morbiſick Matter conſiſts of hot and inflammable Particles. But, when its Parts are ſolid and fix'd, unmix'd with Liquid and thin ones, and comes to be *fermented*, but cannot be perſpired, they muſt be congeſted amongſt the *distracted* and *diſtended* Fibres, ſpread and extended, and raiſed into *Tumors*, *Spots* or *Puſtles*, variously coloured, according to the *Colour* of the Matter, and Degrees of its *Fermentation*, and *Impetus* of the Blood. Hence are the livid, black, reddiſh, greeniſh *Colours*, and different *Sizes* of *Tumors*, *Spots*, *Puſtles*, &c.

But, here 'tis obſervable, that, if the Morbiſick Matter is quickly *fermented* and diſſolved, 'tis forthwith derived into the Glands and Pores of the *Skin*, but is not congeſted there, being carried off by *inſenſible Perſpiration*. Thus, the *Small-Pox*, for Example, come to Suppuration, while the *Measles* are never ſuppurated, but diſcuſſed by *Perſpiration*. And, according to the Degrees of Perſpirability of the Matter; either *Tumors*, *Puſtles* or *Spots*, are raiſed upon this or t'other part of the Body: Which *Diſtempers* of the *Skin*, and their *Prognosticks*, have been no leſs diligently obſerved by the Anti-

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ent Phyſicians, than thoſe that are *internal*. And, the Sagacious *Hippocrates*, has even given us the Signs of their approach. Thus, ſays he, Thoſe who are a long time afflicted with *Fevers*, are affected with *Tubercles* or *Swellings* in their Joints (a). And thoſe who (a) Aph. 44. § 4. a long time, void thin and crude *Urine*, if they live are troubled with *Absceſſes* below the *Diaphragma*. And, where-ever one is pain'd in recovering out of Sickneſs, will have an *Absceſs* in that place (b). And alſo, thoſe (b) Aph. 32. *ibid.* who in a *Fever*, feel a *wearineſs* in their Joints, eſpecially about the Jaw-bones (c). (c) Aph. 31. *ibid.* And again, thoſe whoſe *Urine* is ſuppreſſed with a *Shivering* and *Horror*, and ſeized with a ſleepy Droufineſs, will be ſure to be affected with an *Absceſs* in the *Parotides* or Almonds of the Ear.

Now, thoſe *Absceſſes* or *Impoſthumes*, accompanied with other laudable Signs of Concoction, and break out in thoſe Parts which are at the greateſt Diſtance from the *Viſcera*, that come to a ſuppuration and mitigate the Diſeaſe, are ſoft, full, riſe to a Point, and ripen equally; are rediſh, yellowiſh and whitish Coloured, of an indifferent or moderate Largeneſs and Number, nourished and ſupporated in a little time, are juſtly eſteemed to be *Salutary*. For *Absceſſes* accompanied with thoſe Conditions and Circumſtances, and breaking out upon the Almonds of the Ears and Legs, give a Solution to ſeveral Diſtempers; eſpecially, thoſe that are *Pulmonary*. For,

The groſs and viſcous Humors, the productive

ductive cause of the Inflammation, being rendered Fluxible and separated in the most proper place, the Inflammation must necessarily be mitigated and taken off, and the Patient recovers. So it happens when those Humors fall upon the *Legs*, or extream Parts where the Pressure and *Impetus* of the Blood is weakest, and therefore the more disposed to be congested. Thus also in an *Empyema*, the *Pus* and corrupted Matter sometimes pierces the Membranes, and reaches to the very *Skin*, where 'tis congested either in a great quantity, or in smaller Risings and Pustles, here and there over the Body.

By what hath been said of *Abscesses* that are *Salutary*, those which are not such may readily be distinguished. Thus, when they break out unseasonably, as it happens in *Malignant* and *Pestilential Fevers*, and come not to Suppuration; but recoil upon the Blood, and disappear without any apparent Reason, *i. e.* natural Evacuations, or the Administration of Medicines. Or, when they are too dark, red, livid, and blackish coloured, which, even in the *Measles* is a pernicious Sign. Thus likewise, in the just mentioned *Fevers*, when a *Bubo* comes out well at first, with an abatement of the Symptoms, and afterwards Disappears, and instead of it, *Purple Spets*, 'tis a certain Sign of Death. This recoiling of the Morbifick Matter is sometimes occasioned by *artificial* and *forced Sweats*; which, tho' designed to further the Eruption of the *Bubo*, diffuses and dissipates it all over the Body, which should have promoted



moted the Suppuration. Or, the Morbifick Matter being ſubſtracted, they either ſoon ſtrike in, or at leaſt, never come to a true *Absceſs*. The ſame happens to thoſe in the *Small-pox*, when *Sweat* has been violently raiſed; eſpecially at the beginning of that Diſeaſe. So that thoſe *fatal Events*, ſometimes proceed rather from the ill Management of the Cure, than from any venomous Diſpoſition, or *Malignancy*, as 'tis called, of the Diſeaſe.

Of the nature of *Absceſſes* and *Buboes*, and yet more *malign*, are *Carbuncles*; which break out in *Peſtilential Fevers*, being of a ſalt, ſharp, and almoſt a Cauſtick Nature, the Matter of which is precipitated as 'twere, and detach'd from the Blood in the Ebullition and Fervency of the *Fever*, and fixing it ſelf in the Cutaneous Glands; where, by its Corroſive Sharpneſs, it cauſeth a painful *Heat*, *Mortification*, and at laſt a *blackiſh Colour*. In *Malignant Fevers*, they firſt reſemble a ſmall whitish or livid Blister or Pimple, extreemly painful and *Hot*, and in a little time comes to be an *Ulcer*, covered with a *Crust*, like that raiſed upon the Skin by a hot Iron. Sometimes, they begin with this *Crust*, without any Blister, only the *Ulcer* is hid under it, and then diſcovered when the *Crust* is fallen off, eating and corroding the adjacent Parts. The Iſſue and Prognosticks of thoſe *Carbuncles*, is too well known; and likewise that of *Ulcers* in ones *Leg*, when they dry up, and are followed with a Pain in the Breſt and ſide oppoſite to the affected *Leg*; for, the

the Sign is Mortal. *Hipp. de morb. prop.*

And, generally ſpeaking, the Spots and Eruptions of Humors towards the Skin, the later they appear and nearer to the *Status*, or height of the Diſtemper, ſo much the better: For, then the Diſeaſe tends to a *Criſis* and Concoction. But, in *Malignant Fevers* the ſooner the *Buboes* break out, 'tis the better for the Patient. For, in this caſe, the internal parts are kept clear of the Contagion. And, if the ſwelling of the *Parotides* appear *Symptomatically*, that is, at a time, when the Symptoms are ſtill high, and the Diſeaſe rather inflamed than abated, it always portends Death; But, when it comes *Critically*, 'tis a good Sign, as was juſt now obſerv'd.

The Inflammation happening in the Faces and other Parts of thoſe, taken with *Eryſipelatoſe Fevers*, *Blights* or *St. Anthony's Fire*, has been thought to proceed from the thinner part of the Blood, expelled to the outward Parts, cauſing broad red Spots, by which the *Fever* is taken off. But, more probably, theſe *Phænomena* ſeem to be owing to a ſubtil and volatil Acid, mixed with the volatile Salt of the Blood, by which 'tis coagulated in the Cutaneous Veſſels. For, we may obſerve, that, this Diſtemper commonly happens upon the Nervous and Sanguine Parts. And, 'tis remarkable, that, when its cure is ill managed, the place is ſoon gangreen'd, ſpreads and extends it ſelf upon the adjacent Parts, eſpecially when it happens upon the *Face*.



C H A P. XVI.

*Of Crifis's and Critical Days.*

**E**Very Body knows how religiously, *Critical Days* were obſerved by the Antient Phyſicians. But, later Ages has wipt off the Duſt of antiquity, diſcover'd its Infirmities, and enriched the Art of *Phyſick* with cloſer Obſervations and Discoveries; by deriding Conjectures, and uncertain *Theories* and Opinions, Torturing *Nature*, and examining her Productions by her own Laws, checking her irregular Motions, and preventing the Extinction of the Vital Heat; eſpecially, when aſſail'd by the ſtubborn and unmanageable Diſtempers and Diſorders of *Fevers*, which if not obſtructed, run out their Courſe; ſome ſooner, ſome later, but always accompanied with an uncertain Event and Iſſue; which gave Birth to the odd and even *Critical Days*, aſſigned by the Antients for their *Period*.

It muſt indeed be granted, That, an animate Body, being a Complexion of Animal and Natural Actions, depending upon certain Principles, ſubject to the Laws of Nature; when theſe Principles come thro' Violence or foreign Impreſſions, or the uſe of the *Six Non-naturals*, to depart from their Natural State; what Motions they make to retrieve their Primitive State will be ſuch as are regulate

gulate by Nature. Thus, in Diseases, especially, those that are *Acute*, there is a certain Standard of Increase and Declension, which comes either to a *Spontaneous* Solution by Chance, or thro' the Favour of Nature, or, terminates in Death. This is the *Crisis* of a Disease, on which the Antient Physicians laid so much stress, and in Feverish Distempers pretended to nominate the Day on which it should happen.

Neither is it to be doubted, that, some Diseases are more constant and regular in their Motions than others; and come to their Period, some in the space of a few days, and others in so many Weeks, &c. For, the Concoction of the Morbifick Matter and Humors, is nothing else than a Change and Alteration in them, to a certain Subtilty and Fineness; that they may be carried by the Force and impulsive Motion of the circulating Blood through the Channels of Excretion; namely, the subcutaneous, Intestinal and Salivary Glands, and those of the Kidneys. But, if the Glutenous and Viscid Humors, cannot be altered and concocted to a Perfection proportional to the Orifices of the excretory Vessels; they must either stagnate in the capillary Vessels, or be thrown by the same Power of the Blood, at least into the Cutaneous Glands; and being retained there, are either form'd into *Abscesses*, or taken off by some *Hæmorrhage*; for the accomplishment of which, a certain space of time must be absolutely necessary.



In this reſpect then, it muſt be granted, that there are *Criſiſes* and *Critical Days*, but not fixed to a certain and determinate Number, the Moon's Motion, or that of any other Conſtellation, and thoſe only are *Critical*, in which the Morbifick Matter is brought to perfect Maturity, ſo to term it. And *that* very day, on which it comes to its laſt Degree of Perfection, to be ſeparated and taken off, is properly *Critical*. For, as the Planets accompliſh their Revolutions, ſome ſooner, and others later according to their *Orbits*. So, the different Humors in a Human Body, before they come to the laſt Degree of Maturation or Concoction, require more or leſs time, according to the Degrees of their Fluxibility; and therefore the *Criſiſes* muſt happen at different times. And, ſuch Humors as can be duly concocted on our third day, may *then* conſtitute a *Criſis*, not that there is any Vertue in a *Ternary* Number; But, that ſuch a ſpace of time is ſpent or is neceſſary, for acquiring a due Maturity and Deſpumation. Beſides, a natural Day with us conſiſting of twenty four Hours, and ſuppoſing there be ſome Nations whoſe Days are but Eighteen, the Humors which require Seventy two Hours for their Perfect Maturity, ſhould happen to be *critically* diſcuſſed upon the Fourth, and not upon every third Day. So that in a Parallel Sphere, the time is not to be meaſured by days but by Hours, without which, the myſterious System of *Ternary*, *Septenary*, and ſuch days, muſt be built upon a ſinking Foundation.

But,

But, tho' the *Grecian Phyſicians*, by long and cloſe Obſervations, might have known in what time, or on which day after the firſt Invaſion of a *Fever*, the Morbifick Matter ſhould be perfectly concocted, changed, altered, and brought to a *Criſis*; Yet, the uncertainty of their Obſervations, if applied to the Climate of other Countries, is very Notorious. And, it would be next to a Miracle, if the ſame days which were *Critical* to them, ſhould be ſo with us, not only by reaſon of the *Difference* of *Heat*, but likewise of the Conſtitution and texture of the Blood. Beſides,

Every one may obſerve, that, the diverſity of Countries, makes no ſmall Difference in the Temper and Manners of the Inhabitants, with reference to Timorouſneſs and Courage, Pleaſure and Pain, and other Diſpoſitions of the *Mind*. And, perhaps it may come to paſs, from this diverſity of Climates and ways of living, that, ſome of the *Aphoriſms* and excellent Obſervations of *Hippocrates* are not always verified, but prove doubtful upon the Experiment. Again, the *Grecian Air* is remarkably purer and finer than ours, and therefore the *Criſiſes* of acute Diſtempers might have been more regular and perfect, whereas our *Air* is often defil'd with watry and groſs Impurities, which mixing with, and tainting the Humors; 'tis no wonder, they do not reach a due *Criſis*, and far leſs at the time prefix'd by the *Grecians*.

But, the nicest and moſt diligent obſervers of the *Hippocratical Days*, whether perfectly *Cri-*



*Critical, Principal and Radical* ( ſo called ) as the Third, Seventh, Fourteenth, Twentieth, and ſo on to a Hundred or more, if that will not do, are often miſtaken in their *Prognſticks*, when they come to *Computation*. Some commencing from the firſt Day the Patient was taken Ill ; others when he was confined to his Bed : And, if neither hit right, the Calculation muſt according to the *Grecian Mode*, Commence before or after, and yet after all, find not their Account ; eſpecially, in thoſe called *Imperfectly Critical, Judicatory, Interceding, Medicinal and extraordinary Critical Days*. And, altho' ſeveral Nations have made their peculiar Obſervations concerning the *Criſis's* of *Fevers* ; yet, the uncertainty always remains ; and it muſt be own'd, that, the laſt and moſt perfect Coction of the Febrile Matter and Excretion of it, cannot be fixed to a limited and certain time. Beſides, a *Criſis* being as we have ſeen, a ſudden change in the Diſeaſe, terminating either in Death or Recovery, entirely depends upon the Method of Cure, which, either haſtens or prolongs it. For, this conſiſting in General Evacuations ſeaſonably procur'd, the Crudities and Humors occaſioning the *Fever*, are ſooner brought to Concoction and thrown out, than naturally they would have been.

*Nature*, ( by which I have all along underſtood the Effects of Matter and Motion according to the Laws and Conſtitution of *Animal Oeconomy* ) is indeed the great Phyſician and curer of Diſeaſes ; ſo, that now a  
days

days ſeveral Diſtempers are happily taken off by the ſlighteſt Remedies, or, by a meer abſtinence from them. But, in *Acute Diſeaſes*, the Die is caſt for *Life* or *Death*; and in this Caſe, *Nature* is not to be altogether relied on, neither muſt we, as the Advocates for the Doctrinè of *Criſis*'s patiently wait for the *Issue* of the Conflict between *Nature* and the Diſeaſe; the Peccant Humors of ſome *Fevers*, being ſometimes ſo Tenacious, Stubborn, and Viſcid, that, *Art* muſt interpoſe, to promote its Evacuation ſome way or other: their Malignity too often diſpoſing the Blood to a fatal *Coagulation*, and haſtning Death by being permitted to lodge too long in its Channels. And,

When the Blood is raging and fervent, and expoſed to *Difſolution*, it muſt be controul'd, kept within its Bounds, and its Motions managed in ſpite of the Changes, Conjunctions and Oppoſitions of the Celeſtial Bodies, on which the *Critical* Motions and ſolemn Efforts of *Nature*, and the Rounds of Crudity, Ebullition and Deſpumation were thought to depend. And, in one Word, *Criſis*'s of Diſeaſes vary in proportion to the various Methods of Cure, the Season of the Year, Climate and Country, way of Living, Conſtitution and Age of the Patients.



## CONCLUSION.

**H**AVING thus confider'd, and in ſome Meaſure accounted for the moſt remarkable and obvious *Appearances* of Diſtempers, and the *Prognosticks* taken from them; It now remains for *Conclusion*, ſhortly to ſubjoin, that, as every Diſeaſe Terminates in Death or Recovery, and one dies, when the Morbifick Matter of his Diſtemper is ſo great, ſtubborn, and obſtinate, that it cannot be overcome or withſtood by the Force and Strength of his Fibres, nor by the briskneſs of his Blood and Spirits. So, on the other hand he is reſtored to his Health when *theſe* are not weakned, diſſolv'd, relax'd, and impovertiſhed in a certain and limited time, that is, when the Morbifick Matter exerts its greateſt Power; and comes with all its Force. For, *then* the Fibrous Parts, and the Blood and Spirits, quickly acquire Strength and recover their *Elaſticity*, the Diſeaſe goes off gradually, and the Patient is reſtored to his former Health. But, forasmuch as the Strength of a Diſeaſe, and the Time in which it makes the greateſt ſhock, is beſt known by Experience, if therefore we are ſo happy as to know this *Critical Minute*, and have obſerved, that the Patient has eſcap'd it; then may we with Confidence and Affurance *Prognosticate* a happy Recovery.

This is the Judgment and Compariſon, which, in the *Prognostick Art*, ought to be made between the Strength of the Diſeaſe, and that of the Patient. Which, nevertheless upon the Experiment, is found to be attended with Defects and Fallacies, chiefly, by reason of the various Caſes, Latent Circumſtances of the Diſeaſe, and difficulty of commenſurating the Strength of the Patient. For, in ſome Diſtempers moſt of the *Signs* of their own Nature are ſo dark, obſcure, and fortuitous with reſpect to the iſſue of them, that 'tis no eaſy Matter to have any Foreknowledge of them. When therefore, we want the *Signs*, which are proper to point at the State of the Sick, 'tis no wonder our *Prognosticks* be fallacious and uncertain.

Thus, ſome die before they be affected with any apparent Diſeaſe, and we are ſurprized with it before we could *Preſage* the unhappy *Event*. We are not much affraid of any fatal Conſequences from a Tertian *intermitting Fever*, and yet ſometimes 'tis changed into that which is *continual*, and becomes Mortal. And, thoſe which appear to be genuine Tertians act the ſame Tragedy in a Fit, and the Patient breaths out his laſt in the preſence of his Phyſician. Again, in *Malignant Diſtempers*, we ſee ſome eſcape, and ſome carried off under the ſame *Symptoms* and *Appearances* promiſcuous to both, as vomiting, Stools, Hemorrhages, Sweats, Spots, &c. chiefly, becauſe thoſe Excretions have not been owing to the ſame Cauſe, that is, they have been *Critical* to the one, and *Symptomatical*



*matical* to the other. And, to diſtinguiſh them is no eaſy Matter ; And therefore we muſt be contented with the moſt probable Conjectures, and account for the Cauſes of ſuch *Phænomena* by their Effects.

For, we do not always and ſeaſonably diſcover the Malignancy of the Diſtemper: being often impoſed on by its flattering *Symptoms*, which are often few and gentle; and yet dangerous. Hence it is, that, the unwary Phyſician buoys up his Patient with the Hopes and Aſſurances of Recovery, until a heavier *Symptom* appears that carries him off. Thus alſo, one that's ſubject to habitual Pains in the Head, is commonly taken with a mild *Continual Fever*, which, not being accompanied with grievous *Symptoms*, may incline the *Phyſician* to hope well of his Patient, not knowing, that the *Fever* is owing to the Old Latent Infirmitſy and Diſtemper, which, notwithstanding being inflamed and heightened by the *Fever*, throws him into *Watchings*, a *Delirium* and Mortal *Convulſions*.

Once more, (for *Prognosticks* taken from the *Pulse* and *Urine*, has already been conſidered with the ſame deſign as here, to render us the more Cautious and Circumſpect in our Judgments concerning them) a Rupture of an *Absceſs* in the Breſt, Meſentery or Liver, inſenſibly ripen'd, is not eaſily preſaged, and the time of its breaking determined; chiefly becauſe neither is the quantity of collected Matter, nor Reſiſtance or *Momentum* of the Solid Parts, to withſtand

the Congeſtion, always the ſame, nor is there always the ſame Degree of *Heat* to bring the matter to Maturity. Beſides, that external Applications, Cold, Coughs, and a thouſand ſuch like Chances, may either procraftinate or haſten the Rupture, the Manner and Event of which is no leſs uncertain, becauſe we know not whether a *Vomica Pulmon.* v. g. ſhall fall into the Cavity of the *Breaſt*, or incline to the *Trachea*, and, if there be one in the *Liver* or *Meſentery*; whether it ſhall break upon the *Stomach*, or *Inteſtins*, or fall into the Cavity of the *Abdomen*.

Moreover, 'tis obſervable, that the Epidemick Conſtitution of the *Air*, likewise contributes, to render the *Event* of Diſeaſes to be uncertain, and the *Predictions* made concerning them, precarious. Thus, many die of the *Small-Pox* and *Meaſles*, after the nicest Care and Regimen, notwithstanding they ſeem to be gentle and eaſily cured. And, ſome have obſerved, that, one *Time* is more propitious than another to big Bellied Women, many of them being eaſily delivered in *This*, and in the *next* Month with Difficulty. But, however it be, 'tis plain that the Climate and Conſtitution of Places, renders ſome Diſeaſes more or leſs obſtinate and dangerous. Thus, a hot Season is moſt dangerous in the *Small-Pox*, whilſt *Feveriſh* Diſtempers are oftner then taken off, than in a colder one. And, in Watery, Marſhy, and moiſt Places, *Scorbutick* People are more difficulty cured, and oftner die of  
grievous



grievous Symptoms, than thoſe who live in a more ſerene and clear Air.

Now, for theſe and many other Reaſons that might be adduc'd, I think 'tis plain, how prudently and cautiously, a Phyſician ought to inſtitute his *Prognosticks*; and how pertinent to this Purpoſe the Sage *Hypocra-tes* his Advice is, *Ob hæc ergo non tutum eſt prædicere, priuſquam ad ſtatum perveniat morbus, verum ab hoc tempore, quicquid præter rationem acciderit, dicere oportet* (a). And, (a) Porthe. lib. 2.  
*Conſulo autem ut quam prudentiſſime agant, tum in reliqua Arte, tum in huiuſmodi prædictionibus, illius probe memores, quod ſi cui ſucceſſerit prædictio, iſ apud ægrum Prudentem in admiratione fuerit: ſi vero quis aberrarit, præterquam quod odio habetur, fortasſe, etiam inſaniſſe videbitur* (b). For, ſome Signs (b) Ibid.  
 being only probable, and theſe too being often changed and altered by very ſlight and ſometimes hardly obſervable Circumſtances, *Prognosticks* concerning them, are to be made with all poſſible Caution, eſpecially, in acute Diſtempers, which, ſometimes expoſes the Phyſician to no ſmall Reproach and Contempt, when his *Auguries* happen to be False and Precarious.

A Prudent and Wary Phyſician therefore will be moderate and ambiguous in his *Promiſes*, and reſerv'd in his *Prognosticks*, unleſs founded upon certain and infallible Signs. Some there are, whoſe Avarice prompts them to foretel the worſt, pretending thereby, to render the Patient the more obſequious, and to be treated with the greater

greater Care, that the greater Honour and Advantage may redound to them upon *Recovery*, and leſs Reproach from an *unhappy Event* that was foreſeen and præſaged. But, I cannot be perſwaded, that *Recovery* brings any Honour to the *Physician* who predicted *Death* to his Patient, or told him that his Diſtemper would continue long, which ends in a ſhort time. For, as neither the Love of Mony or Popular Fame, ſhould tempt one to ſay that which is not true; ſo, the Sick and Attendants may be diſpoſed to be obſequious, by the ſeverer *Admonitions*, founded upon the Danger that may inſue, upon the neglect of *Diet* and *Medicines*. And, on the other Hand, when the *Physician* gives hopes of *Recovery*, and *Death* follows, the Reproach caſt upon him, is leſs regarded, becauſe, Miſtakes will happen, or the Diſeaſe is changed into another that could not be foreſeen, and accompanied with new and more dangerous *Symptoms*. Beſides, the change from *Health* to *Death* happens oftener, than from *Death* to *Health* and *Recovery*.

Neither doth a prudent *Physician* give poſitive Affurances of ones Recovery; For, 'tis God alone that preſerves our Life, and prolongs our Days. And, the ſoundeſt and ſtrongeſt of us not being ſure of to Morrow, much leſs is one that's Sick. But, when he foreſees inevitable and certain *Death*, his Prudence will incline him to give timely Notice of the Danger. Some indeed, think it more proper to comfort the dying Patient with



with the hopes of *Recovery*, leſt the terrible Account of his being paſt Remedy, ſhould haſten his *Death*. But, every one knows, that this is to be done with all imaginable Caution and Prudence; namely, not to tell him that he muſt *die*, but that his State and Condition is *Dangerous* and *Doubtful*. For, Monſtrous and ſurpriſing Accidents very often happen in Art as well as Nature. Thus, one *Phyſician* deſpairing of his Patients *Recovery*, takes his farewel, another is called, and the Sick *Recovers*, ſo that, *One Sows, and another Reaps*. And, ſometimes the Sick is ſo much ſtartled upon the terrible Sentence of his moroſe *Phyſician*, that he is more ready to follow the Advice of the next, and to throw Reproaches upon him who added Affliction of the *Mind* to that of the *Body*, and threw him that was Miſerable, into Deſpair.

'Tis therefore more proper, to communicate, but with a Serene Countenance and Air of Good Hope, the imminent Danger and Hazard to ſome near Relation or Attendant, who, in a proper way will admoniſh the Sick of his State and Condition. Nay, it may be more directly inſinuated to ſuch Patients who are indowed with a preſence of *Mind* and *Spirit*; whereas, the worſt is to be always concealed from thoſe that are Young and Timorous. 'Tis true indeed, that, they are but few that are bleſſed with ſuch a Compoſure of *Mind*, who are not damped and funk, upon the account they have of certain and inevitable *Death*. But, ſome there are, eſpeci-

eſpecially, thoſe who have been long afflicted with grievous and painful Diſtempers; and in *Death* promiſe to themſelves an end of all their *Miſeries*. Hence it is, that ſome wiſh for it, and are ſolicitous concerning their State and Condition, that they may the more conveniently diſpoſe of their worldly Concerns; and in ſuch Caſes to be reſerved or doubtful, ſeems to be unaccountable. But nevertheleſs, the dying Patient is always to be comforted, the uſe of Remedies continued, and adminiſtered, eſpecially, ſuch as are mildeſt and moſt eaſy, which, upon many Accounts at this time are the ſafeſt.

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*F I N I S.*

















